FEBRUARY, 1907. Vol. LI. No. 348.

JOURNAL

OF THE

Royal United Service Institution.

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. GARBETT, R.N. (Retired),

To whom all communications should be addressed.

LONDON:

The Royal United Service Institution,

WHITEHALL, S.W.

Telegraphic Address: "RUSSATUS, LONDON."

Printed by J. J. KELIHER & CO., LIMITED, 32, New Bridge Street, E.C., and 33, King William Street, E.C.

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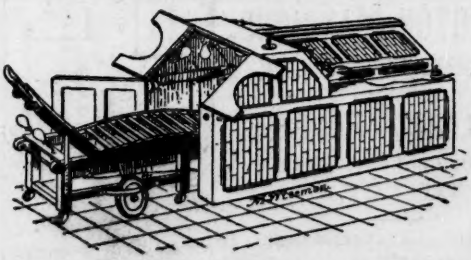
CONTENTS FOR FEBRUARY, 1907.

		PAGE
1.	A VIEW OF ROYAL BUILDING FOR HIS MAJESTY'S HORSE AND FOOT GUARDS, WITH THE TREASURY, IN ST. JAMES'S PARK, LONDON, 1753.	
2.	SECRETARY'S NOTES	121
3.	THE STANDARD OF NAVAL STRENGTH. LECTURE BY LIEUTENANT CARLYON BELLAIRS, R.N. (RETD.), M.P.	123
4.	IS A NATIONAL ARMY NECESSARY FOR THE BRITISH ISLES, AND IF SO, HOW SHOULD ONE BE FORMED AND TRAINED? BY CAPTAIN J. B. G. TULLOCH, *p.s.c.*, 2ND K.O. YORKSHIRE LIGHT INFANTRY	184
5	THE RECONSTITUTION OF OUR INDIAN ARMY: ITS COMPOSITION IN THE PAST AND IN THE PRESENT. BY LIEUT-GENERAL F. H. TYRRELL (LATE INDIAN ARMY.)	199
6	THE EDUCATION OF THE SOLDIER. BY COLONEL H. C. C. D. SIMPSON, C.M.G., R.A.	206
7	THE BATTLE OFF TSU-SHIMA. IN MEMORY OF "THE SUVÓROFF," A PERPETUAL TRIBUTE TO FALLEN HEROES. BY COMMANDER VLADIMIR SEMENOFF, IMPERIAL RUSSIAN NAVY. TRANSLATED (WITH THE AUTHOR'S PERMISSION) BY LIEUT-COLONEL W. E. GOWAN, RETIRED LIST, INDIAN ARMY.	213
8.	NAVAL NOTES	221
9.	MILITARY NOTES	238
10.	NAVAL AND MILITARY CALENDAR FOR JANUARY, 1907	253
11.	CONTENTS OF FOREIGN JOURNALS FOR JANUARY, 1907	253
12.	NOTICES OF BOOKS, AND PRINCIPAL ADDITIONS TO LIBRARY IN JANUARY, 1907	260



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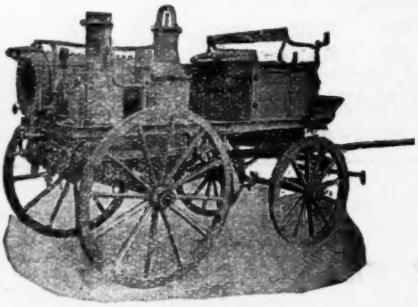

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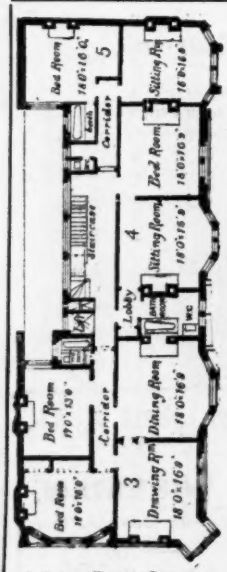

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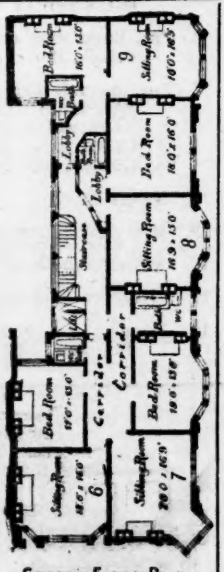

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The following Officers, whose names are arranged in regimental order, were successful from us at the recent Competitive Examination for admission to the Staff College:—

Capt. C. Evans, R.F.A.
Capt. G. C. Merrick, D.S.O., R.G.A.
Capt. W. H. Moore, D.S.O., R.G.A.
Capt. J. P. Mackesy, R.E.
Capt. B. W. B. Bowdler, R.E.
Capt. F. D. Farquhar, D.S.O., Coldstream Gds.
*Capt. R. G. Parker, Royal Lancaster Regt.
Capt. G. N. T. Smyth-Osbourne, Devonshire R.
Capt. V. H. M. de la Fontaine, East Surrey R.
Capt. and Brev. Major F. R. Hicks, Hamps. R.
Capt. H. S. Williams, Dorsetshire Regt.
Capt. B. D. L. G. Anley, D.S.O., Essex Regt.
Capt. R. S. Hamilton-Grace, Durham L.I.
*Capt. H. F. Baillie, Seaforth Highlanders.
Capt. P. S. Allen, Gordon Highlanders.
Capt. J. K. Cochrane, Leinster Regt.
Capt. R. L. Ricketts, Indian Army.
Capt. W. K. Bourne, Indian Army.
Capt. F. W. Lumsden, Royal Marine Artillery.

And the following received nominations:—

Captain H. C. Bickford, 6th Dragoon Gds.
Captain C. J. C. Grant, Coldstream Gds.
Captain W. D. Wright, V.C., R.W. Surrey R.
Captain C. H. Harington, D.S.O., Liverpool R.
Captain H. Wake, D.S.O., K.R.R. Corps.
Captain and Brev. Major N. J. G. Cameron, Cameron Highlanders.
Captain G. P. Grant, D.S.O., Indian Army.

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89th	...	W. G. Bagot-Chester	4,115	190th	...	R. M. Aylmer ...	3,339
90th	...	A. G. Ottley... ...	4,109	197th	...	O. Gough	3,262
93rd	...	A. P. Williams-Freeman	4,091	201st	...	P. W. J. A. Stomm	3,151
115th	...	D. M. Black	3,940	213th	...	B. W. Molony ...	2,881
125th	...	W. J. King-King ...	3,846				

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DECEMBER, 1905.

SECOND	...	H. G. MacGeorge ...	7,196	16th	...	R. Crofton	6,330
FOURTH	...	G. Walton	7,046	45th	...	D. Stephenson ...	5,899
FIFTH	...	H. A. Cox	6,967	54th	...	J. Kennedy	5,711

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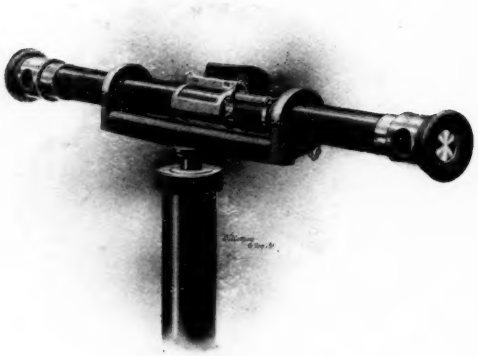
A. E. Hardy	...	...	...	2,304	W. F. Anderson	...	...	...	1,947
N. H. Hutcheson	...	...	...	2,105	D. C. Robinson...	...	...	...	1,879
*F. D. Frost	...	...	...	1,949	F. A. Bowring ...	...	...	...	1,876

* Read partly at the Army College, Aldershot.

ARMY QUALIFYING, 1906.

NINETEEN PASSED FROM US.

Special Arrangements have been made for the next Examination.



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VOL. LI. FEBRUARY, 1907. No. 348.

[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

1 The following officers joined the Institution during the month of January :—

Captain R. Meinertzhagen, Royal Fusiliers.
Captain D. S. Robertson, Royal Scots Fusiliers.
Major H. Haggard, East Yorkshire Regiment.
Captain T. G. Dally, King's Royal Rifle Corps.
Captain S. J. Le P. Trench, 3rd V.B. South Staffordshire Regiment.
Second Lieutenant R. G. Proby, R.F.A.
Lieutenant R. F. Eyre, R.N.
Captain D. G. H. Auchinleck, Royal Inniskilling Fusiliers.
Lieutenant C. J. Pickering, West Riding Regiment.
Captain R. F. Jelley, R.E.
Captain W. G. Braithwaite, D.S.O., Royal Welsh Fusiliers.
Lieutenant J. B. Adams, R.N.R.
Sub-Lieutenant F. C. Darley, R.N.
Lieutenant G. H. F. Abraham, R.M.L.I.
Captain H. W. Worsley-Gough, Connaught Rangers.
Captain R. Johnstone, King's Royal Rifle Corps.
Lieut.-Colonel C. J. L. Davidson, D.S.O., Royal Inniskilling Fusiliers.
Captain J. W. O'Dowda, Royal West Kent Regiment.
Captain G. M. Orr, Indian Army.
Second Lieutenant G. V. W. Hill, Royal Irish Fusiliers.
Captain H. J. Greig, R.G.A.
Lieutenant W. D. Trayler, Gold Coast Volunteers.
Captain H. A. Jones, 3rd V.B. Royal Fusiliers.
Lieutenant F. L. Von Stieglitz, 12th Australian Infantry.
Lieut.-Colonel F. D. Baillie, 2nd County of London I.Y.
Major G. C. Knight, Loyal North Lancashire Regiment.
Commander F. O. Lewis, R.N.
Lieutenant S. W. B. Green, R.N.
Second-Lieutenant L. W. White, Unattached List Auxiliary Forces.
Lieut.-Colonel J. I. Bonomi, late King's Own Royal Lancaster Regiment.

Lieutenant G. Blake, R.N.
Major J. D. McLachlan, Cameron Highlanders.
Lieut.-Colonel J. G. Adamson, late Yorkshire Light Infantry
Major G. H. Morland, 1st V.B. Royal Berkshire Regiment.
Major L. C. R. Messel, 2nd V.B. Royal Sussex Regiment.
Captain A. Grant, D.S.O., 12th Lancers.

(No officer of the Militia joined the Institution during the month.)

2. The following additional lectures have been arranged:—

February 27th.—"National and Non-National Armies, a Study in Military Policy," by Mr. F. Ellis-Barker, Field-Marshal the Right Honourable Earl Roberts, V.C., K.G., etc., presiding.

March 20th.—"The Factor of Mobility in Strategy," by Colonel F. N. Maude, C.B., Hampshire R.E. (V.), late R.E., Lieut.-General Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., presiding.

Major-General H. D. Hutchinson, C.S.I., Director of Staff Duties, will preside at the lecture on April 24th by Captain P. A. Charrier, Royal Munster Fusiliers, on "Bonaparte's Campaigns in Italy, 1796."

3. The Council have arranged for a course of Military History Lectures to be delivered of an afternoon during the months of April and May on the subjects set for the May Promotion Examinations. The dates of the Lectures will be announced in due course. The Lecturer will be Mr. J. H. Anderson, Barrister-at-Law.

4. The following are the names of the Candidates nominated for the vacancies on the Council:—

Royal Navy (2 Vacancies).

Admiral of the Fleet The Lord Walter Kerr, G.C.B.
Vice-Admiral Sir Charles Campbell, K.C.M.G., C.B., D.S.O.
Lieutenant G. R. Maltby, M.V.O., R.N. (retired).

Regular Army (1 Vacancy).

Major-General Sir T. Fraser, K.C.B., C.M.G.
Colonel L. B. Friend, R.E. (Assistant-Director of Fortifications and Works).

Royal Marines (1 Vacancy).

Colonel J. H. Bor, C.M.G., A.D.C., R.M.A.

5. The Council regret that they were unable, owing to the Museum being closed, to make any arrangements for members and their friends to witness the Royal Procession to Parliament on 12th February. They hope that the numerous applicants for tickets will accept this explanation.

THE STANDARD OF NAVAL STRENGTH.

By Lieutenant CARLYON BELLAIRS, R.N. (Retd.), M.P.

Thursday, 6th December, 1906, at 3 p.m.

Admiral Sir R. H. HARRIS, K.C.B., K.C.M.G., in the Chair.

The Traditional Policy. "The House of Commons, even when most discontented and parsimonious, had always been bountiful, even to profusion, where the interests of the Navy were concerned."—*Macaulay.*

The Party View is, "Navy above Party." "Large sacrifices had to be made, and it is satisfactory to know that in the House of Commons there was not a hostile vote—and I think I may almost say there was not a hostile speech—against the proposals of Her Majesty's Government to strengthen the Navy. And there is this remarkable fact, of which I think we all ought to be proud, that the policy of increasing the Navy was taken out of the domain of party politics."—*Earl Spencer (Liberal) at Mansion House, 10th November, 1894.*

"I venture, with very great respect, to remind the House that naval administration is not a party question; that it never has been treated as such; and I sincerely hope that past practice will be followed in the present instance."—*Mr. Pretyman (Conservative), 7th March, 1905.*

MY last paper on the standard of strength was read on 27th June, 1904, when the present Secretary of State for Foreign Affairs was in the Chair. It dealt largely in a condemnation of the expenditure of previous years. The danger now is that we appear to be swinging to the other extreme.

In 1904 I took the unusual course of quoting in an appendix selections from the sayings of statesmen, sailors, soldiers, historians, and economists about the maintenance of our sea power. Naval supremacy is the key to all efficiency and all economy, so we need not wonder why Adam Smith placed it before free trade itself I indulged the ambitious hope that my paper and those quotations would assist continuity of policy. In the paper the late Lord Salisbury's words were quoted: "The defence of the country is not the business of the War Office or the Government, but the business of the people themselves." If this is the case, we certainly do nothing to educate our masters. The Return of Fleets (Great Britain and

Foreign Countries), analysed in Appendix S, is about the only information handed to the public. The people lack the historic sense, and no adequate attempt is made, as is done in Germany, to cultivate it in the schools of the country. We seldom learn from history; we never look to the future. Consequently, warnings are neglected; we live in reactions from one extreme to another. And when the danger which was foreseen by a few is visible to all, we have a wasteful panic. I advocate the teaching of history as of paramount importance.

Personnel.

The 1904 paper did not deal with the *personnel* for the reason that the present permanent force is certainly up to, if not beyond, our requirements. We are able now to man all existing ships without touching the Royal Naval Reserve. The tendency of invention is towards fewer ships and smaller crews. Uniform armament of heavy guns, turbines, and oil fuel all mean smaller crews, while the tendency is for the power of several ships to be concentrated into one. It is very important to remember that the chief waste of naval war is the opposite to that of land war, in that it is a loss of *matériel* rather than of *personnel*. After a few weeks or months of war we are likely to have a redundancy of men. This is most pronounced in the engine-room complements under the protective deck, more so than among the exposed executive and marine branches above. The rule is, that unless the ship sinks, there are no casualties below the protective deck. The great advantage derived therefrom is, that the fighting and navigating portions of the crew, on the one side, and the engine-room on the other, can specialise in their difficult and widely separated spheres of work.

The country that brings this specialisation to its highest pitch of efficiency is the one that will make the best use of its *matériel*. Like battles, the approaches to perfection are only to be won by a life-time's concentration, and not by dispersion of effort. One word more with reference to this subject. No system of training the *personnel* is likely to be successful which does not carry with it, if not the enthusiastic support of the Navy, at least the support of the great majority of the officers of that Service. I have now stated the conditions of the problem, and on those conditions we must judge the relative merits of the German system and the one we are about to introduce afloat from Dartmouth, and from the ships for training stokers as mechanics and watchkeepers. How, then, are we to get the best intelligent opinion of the Service on this as on all other matters? It is only by full and impartial inquiries, by untrammelled discussions in this Institution, or by the three P's—Press, Parliament, and Platform. A wise administration of the Admiralty should endeavour to bring these things to pass with a view to facilitating its own work.

Distribution of Ships.

To secure efficiency, not only is concentration required inside the unit ship, but there must be a concentration of units themselves in large fleets in such a manner as to reproduce as nearly as possible the conditions of war. Sea training in association with large fleets of the most modern vessels is the ideal; and it is from this point of view that any redistribution scheme must be judged. A country

which has no second line of defences must necessarily keep her only defence in a state of greater preparedness than the sea forces of nations who are well able to defend themselves on shore. At the same time, no nation should be pressed to keep the whole Navy in peace on a war footing.

The difficulties of the Government next February, when they carry out their redistribution scheme, will be of their own seeking. They elected to state in a memorandum that an increase of efficiency results from reducing two sea-going fleets to small units in order to constitute a Home Fleet which is not to be fully manned, and from cutting down cruiser squadrons to only four vessels each, when experience shows that spreading practices with wireless telegraphy and searchlight signalling can only be efficiently exercised when six vessels take part. They claimed that a gain in strength would also be obtained from keeping certain older ships in the sea-going fleets, while the "Dreadnought" and several other modern vessels are in the Home Fleet at Sheerness. The enunciation of such principles is subversive of the whole spirit of fighting Navies. The *Standard* announces that a number of battle-ships and armoured cruisers are to be placed in special reserve, or in the class on which no further repairs are to be executed. The neglect of obsolescent ships is justified if considerable attention is devoted to new construction. If a nation is too poor to keep up a policy of replacement of old ships, she must, above all things, make the best of what she has got. She cannot have it both ways. (*See* Appendices J, K, L, M, for wastage and replacement tables.)

Forecasts.

There were three forecasts in my paper in 1904. One was that the two-Power standard had not more than five years lease of life. The Prime Minister last July described the standard of France and Germany, and by inference that of either Power with the United States, as a "preposterous idea." The two-Power standard is spoken of as "a rough-and-ready guide," and this prompts the suspicion that an elastic standard is intended, and, when it can no longer be stretched, it will be broken. The second forecast was, that by careful attention to standardisation and organisation it would be possible to build ships in under two years instead of three years two months, as we were taking then. The other forecast I made was the expression of my hope that the cost of a battle-ship would "rise considerably all over the world to about two millions sterling for each battle-ship." Subsequently the "Lord Nelsons" were laid down, to be followed by the "Dreadnoughts." One can only say now that the policy of initiating this development in ships is dependent for success on the courage with which it is pursued. There is an apparent lack of both courage and caution in the reductions to which the country has recently been pledged. The reductions for next year are held out as an example to the Peace Conference. One may safely venture on a fresh forecast, that no gain in the direction of disarmament will result from this Conference.

The Peace Conference.

My 1904 paper pointed out the danger of Great Britain taking the initiative in a Conference for the limitation of naval armaments.

The House of Commons this year passed a resolution calling on the Government "to take drastic steps to reduce the drain on national income, and to this end to press for the inclusion of the question of the reduction of armaments by international agreement in the agenda of the forthcoming Hague Conference." It was accepted by the Government as a message to foreign Powers. Analyse it from this novel point, read the preliminary wail about the expenditure being more than we can sustain, and then imagine such a document handed to Prince Buelow! What conclusion can we come to but that it was a tearful begging letter to the nations that Great Britain was at the end of her tether, and would they be so kind as to get us out of our difficulties? It is unnecessary to restate the objections urged in my paper, for the whole subject has been much more fully threshed out in both Houses of Parliament; but it is permissible to point out that everybody is willing to discuss the question of disarmament. I hold, however, that the initiative ought not to be taken by Great Britain.

Wasteful Duplication of Expenditure.

In the 1904 paper it was pointed out how the Army tended to do over again the Navy's work.

What is sometimes called a second line of defence is really a duplication of expenditure and the dispersion instead of concentration of fighting force. This was the direction in which economy was urged. To everything the question was to be addressed: Are you vitally necessary or are you merely supposed to be useful? Only what is vital should be kept. Bases and forts could be abandoned, garrisons cut down, and the Army and Militia organised for service abroad. The economy could, however, only be achieved through the certainty of naval supremacy. That is to say, no mere equality with an enemy would suffice, but we must have a safe working margin of superiority. An official return obtained by Sir John Colomb in 1903 showed in round numbers that 14½ millions sterling per annum went to immobile defence. Of this amount nearly 10 millions was for the forts along our 43,000 miles of coast line. Reckoning interest on first cost, manning, stores, repairs, and replacement for a 20 years' life, the £2,000,000 battle-ship would cost £250,000 per annum. Two millions would therefore give us eight extra "Dreadnoughts," and with them Sir Arthur Wilson could have cornered his opponent last manœuvres in less than a week. That is with one-fifth of the sum now spent on defending ports, many of which nobody would dream of attacking.

Army Policy.

One thing, however, is certain. We cannot have it both ways. We cannot abandon shore defences against invasion and at the same time weaken the Navy that makes the economy possible. Let us take stock of the new responsibilities thrust upon the Navy as the result of the Blue-water School's triumph:—

1. Mr. Brodrick's Army scheme originally provided for 435,000 men to defend us against invasion.
2. In 1905 Mr. Balfour postulated for a military force to overcome an invasion of 70,000 men.
3. In 1906 Mr. Haldane accepted blue-water principles and threw the whole responsibility of protecting the country against invasion on the Navy.

An Immediate Striking Force.

Mr. Haldane's memorandum of 30th July says:—

> "To sum up, the Government's proposal is that effort shall in future be mainly concentrated on the production of an expeditionary force *immediately* available for use over-seas in war."

Obviously such a force cannot cross the seas in war except under the protection of a predominant Navy, and one whose predominance exists under the military policy of the Government from the very outbreak of the war. For the same reason even our land frontiers, such as the 5,700 miles of Indian frontier, must be prepared at inordinate cost, unless the Navy can guarantee reinforcements. Yet the same day as Mr. Haldane issued his memorandum, Lord Tweedmouth explained in the House of Lords that the naval reductions were made because he brought before the Sea Lords the necessity of economy! The result was not a mere return to the normal, following on inflated Estimates; it was a reduction on top of a reduction. We were the only Power throughout the world that had diminished naval expenditure after 1904, in our case to the extent of five millions sterling. To achieve this we cut down stores and repairs, and framed a minimum programme of four armoured ships. (*See* Appendix A.) Then, having lost the "Montagu," having seen new programmes sanctioned by France and Germany in the spring, having multiplied the military responsibilities of the Navy indefinitely,[1] we are promised huge reductions of the naval programme for two years, carrying us far below the combined shipbuilding expenditure of either Germany and the United States or Germany and France. (*See* Appendix Y.)

Expenditure.

I doubt whether it is clearly understood where these naval reductions are carrying us. All expenditure on armaments is relative. In the three years ending 1907-8 the relative increase of the German Navy Estimates, compared with our own, will be at least ten millions sterling. (*See* Appendix Z.)

Anyone acquainted with the temper of the majority in the present House of Commons knows that the reductions are looked upon as permanent. The Socialist view is that the money is to be permanently used for social reform, and the official Liberal view is to apply it to the relief of taxation. Consequently, if our Navy Estimates are to stand still at the position of 1907-8, we have to take into consideration the further rise of the German Estimates provided for of £1,534,000 by 1909. Here, then, is a relative increase of 11½ millions sterling.

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[1] I do not wish to burden the paper with too much detail, but it should be mentioned that we have recently withdrawn the troops from the West Indies, Halifax, Esquimault, Trincomalee, St. Helena, and Wei-Hai-Wei. We have reduced the garrisons at Gibraltar, Malta, Mauritius, and elsewhere, abandoned systems of defence by submarine mines and Brennan torpedoes, and withdrawn dockyard stores and machinery from several over-sea yards. The Admiralty have officially explained that "if war broke out we could *at once* send out the necessary men and machinery." Of course, under protection of the reduced Navy.—C.B.

From the point of view of the two-Power standard, there are no compensations to be found elsewhere, either in France or the United States, for both nations are largely increasing their Estimates, while our own are decreasing. Since 1904 the American naval expenditure has increased by £5,416,000, and the French by nearly half-a-million sterling, with the bulk of the increase to come next year. It cannot be contended that our example has had happy results. In Appendix Y it will be seen that our expenditure on shipbuilding, repairs, and armaments is likely to fall 3½ millions sterling below the combined expenditure of France and Germany on the same items. In 1893, under Mr. Gladstone, we had a new construction expenditure £2,210,000 lower than France and Russia. What was the result? In 1894 the biggest programme on record, and a new construction expenditure in 1896 of £7,327,000, or 4½ millions more than in the year of economy.

Theories on which Reduction is Defended.

It is now time that we examined the arguments which have been advanced in favour of reduction. I know of no more foolish contention in our naval discussions than the plea which has been advanced by civilians like Lord Eversley, that tonnage is an accurate measure of fighting strength. On this ingenious and almost childish theory Lord Eversley arrives at the conclusion that all our "Royal Sovereigns" are first-class battle-ships, and that Germany has no first-class battle-ships built or building. Compound armour being such that it takes 5,000 tons to give the same results as 2,000 tons of Krupp armour; still the extra 3,000 tons is so much extra fighting power. So with the thousands of extra tons of coal and wood sheathing carried by our ships. The "Asama" of 1898, which did so well in the recent war, is to be reckoned the inferior of the "Kent," because, forsooth, she is 100 tons less displacement; yet she carries two inches more of armour and mounts two extra 8-inch guns. The tonnage theory, which has never been advanced by a responsible naval officer, amounts to this, that we are to add up the mistakes of the past on the balance side as though they were miracles of common sense, and we are to go into action with as vast an aggregation of tonnage as the Russians did at Tsushima. I may tell these gentlemen that in naval administration, as in the administration of private affairs, the great art is to cut one's losses, and in that class we must reckon many thousands of tons of so-called war-ships.

The Margin of Safety.

There is another maxim in business, and that is, always to work with a margin of safety. I have seen only one sensible argument for a weakened Navy. It is, that on the day of battle a single Power has an undoubted tactical advantage over allied Navies. The view, however, neglects strategical considerations. Supposing a war with France, Germany intervenes. Can we neglect the North Sea because we are fighting another nation in the Mediterranean? The provision of force has to be the same as if we were fighting two fleets of the same nation. What the advocates of naval reduction never realise is, that the problem of naval war for Great Britain is essentially different and more difficult than that presented to con-

tinental nations, such as the United States, Germany, France, or Russia, to whom sea-power is not a vital necessity. For Great Britain must keep open all her sea roads by a continuous occupation of the sea, so as to prevent the arrest of her commerce and industry through sudden and violent incursions of the enemy. For perhaps 360 days out of 365 in the year, she must go on with all the difficult drudgery of absent ships coaling, refitting, convoying, the heartbreaking accidents of navigation, and all the vexatious precautions of the sea which are not fighting, but which are yet essential to the avoidance of disaster, when the day for fighting comes.

International Law and Neutrals.

It is for the reasons I have mentioned, chief among which is the coaling difficulty, that it is an accepted maxim among foreign strategists that 30 of their battle-ships are the equivalent of at least 40 British battle-ships. Hitherto, we have always hoped that the coaling difficulty would seriously curtail the power of commerce destroyers to evade our own cruisers. The declarations of the Powers during the recent war, and the actual coaling of the Russian ships, have not shown such a rigid interpretation of neutral obligations as we had anticipated. Our only hope, beyond the Hague Conference, lies in our own strength in cruisers, and I commend to your study the remarks in Appendix V. At the same time, let me strongly insist that questions with neutral Powers will be apt to arise with even more frequency than in the past, and as a belligerent we cannot hope to impress our views unless we have a reserve of strength as when we sent a fleet to Copenhagen without diminishing our blockading fleets. The reserve of strength is not only the visible means which strengthens our diplomacy during peace, so that peace tends to be preserved, but it is the only means we have when beset by war's difficulties, of maintaining a firm front in face of neutrals. It is only a few months ago that our whole Mediterranean force was ordered to overawe a nation without any Navy at all.

Losses Due to Navigation.

The past cannot teach us much about the coaling difficulty, to which we have referred, except in so far as incidents connected with provisions and water bear on the matter of supplies as when Nelson parted with six of his battle-ships the day before Trafalgar. History, however, can tell us much concerning losses through accidents which are not due to battle. The ordinary losses through accidents of navigation were abundantly illustrated prior to the battles of St. Vincent, the Nile, and Copenhagen.

Between 1793 and 1802, or a period of 9 years, we lost through causes other than war, 64 sail of the line and frigates, as compared with 19 for the allies, France, Spain, and Holland, or over four to one. Even now, when British ships do not spend more than a quarter of their time at sea, we find such incidents as over half the Mediterranean battle-ships unavailable on receiving the order to proceed east for the coercion of Turkey, and after delays, only five out of the eight battle-ships were on the scene of possible hostilities. Within the last few months we have had the deplorable loss of the services for a time, or for all time, of the "Montagu," "Duncan,"

"Dominion," "Prince of Wales," "Hindustan," and "Ramillies," while four other battle-ships had to part company from their fleets in the manœuvres through engine-room defects. The "Africa" was nearly piled up on the "Lizard" in a fog. The "Prince George," "Renown," and "Mars" grounded, the "Dreadnought" damaged when entering Portsmouth basin, and the "Illustrious" in collision, complete the list of minor accidents for the year to our battle-ships. Other battle-ships, like the "Glory" and the "Ocean," have been a perpetual drag on their fleets.

Invention.

It is invention which enhances the need of constant watchfulness as to the maintenance of our naval supremacy. The mere introduction of turbines with their large consumption of coal means that ships will be oftener absent from their fighting positions, while water-tube boilers need more constant renewals. Turbines have suddenly increased the speed of all new commerce destroyers, as against all our existing cruisers with reciprocating engines. The accuracy and rapidity of modern gun-fire, enabling particular portions of the hull to be hit successfully, and the development of shell-fire has made the unarmoured ends of 34 out of 60 British battle-ships, the Achilles heel of the British Navy. (*See* Appendix B.) The German North Sea Fleet of 16 battle-ships, will have, for instance, 256 quick-firing guns, 6-inch and above, as compared with 158 in the secondary batteries of the 14 battle-ships in the new Channel Fleet, and though we have put the nine available battle-ships which have complete belt protection into the Channel, there are still left five with unarmoured ends for 256 guns to play upon.

Wireless telegraphy assists us provided there are enough vessels carrying the instruments, so as to spread our net as widely as possible. (*See* Appendix V., dealing with the Admiralty statement virtually admitting that if we do not at once lay down a number of cruisers we shall have only the 3 "Invincibles" and 35 armoured cruisers at our disposal as cruisers.)

The gyroscope has undoubtedly increased the range and accuracy of torpedoes, so that 4,000 yards' range is now almost practicable, and consequently, the risks to ships, the need of both a margin of safety in numbers of armoured vessels and of destroyers, to make it hot for the enemy's torpedo craft, has been increased. (*See* Appendix W, dealing with destroyers.) The advocacy in Germany of the practice of the Russo-Japanese War, of laying mines on the open sea, introduces a factor in the North Sea by which Japan lost one-third of her battle-ship strength in the recent war. It is to be hoped that the Hague Conference will settle this point, which is of far more importance than wasting our efforts after unattainable ideals.

Relative Strength.

I now come to the most controversial part of my paper, our actual relative strength judged by the rule Lord Cawdor says has existed for years at the Admiralty, of a very large superiority in cruisers over any two Powers, and a ten per cent. margin of superiority in numbers of effective battle-ships over any two Powers. In the Appendix I have had recourse to almost every authority, and to a

number of comparisons of my own. In every case I find that when we allow for ships building and projected, we are falling below the two-Power standard. The most interesting tests are those according to age (Appendix I.), and the test by gun armaments measured by the capacity of the guns to fulfil their office of breaking down the armour of an enemy's ship. (Appendix H.) I have left out the United States in the case of the guns, for if included as one of the two Powers we should be hopelessly below the standard. The table is open to criticism, on the ground that it makes no allowance for any superiority of gun platforms. It is only when taken in conjunction with other data in the Appendix that I believe we find overwhelming evidence that the reductions of our shipbuilding programme for next year are not justified.

Considerations Governing Policy.

Ruling out the United States for purposes of argument, we are left with France and Germany to consider. In Appendix D it is shown that the speed at which individual ships are built in Germany is level with our own. On the other hand, French shipbuilding has been so demoralised by Socialistic interference that if ships are laid down now, or, say before next March, we need not provide for them until our programme of 1908-9. The limitation to this argument is, that it is grossly extravagant for us to lay down three ships one year and nine the next. I propose now to see how we stand in regard to the opinions of the expert advisers of the nation as enunciated when they laid down our *minimum* requirements last November. Their calculation was based on the ships then building in France and Germany. In that year, 1905-6, we had laid down four armoured ships to three for Germany and none for France. In the spring of 1906, Germany sanctioned an additional armoured ship; while in July we postponed one armoured ship, owing, as Lord Tweedmouth has told us, to his impressing on the Board the need of economy. The day after Parliament adjourned, the Admiralty announced the complete loss of the "Montagu." Thus, apart from any question of replacing the five "Admiral" class which have been set aside this year, or the fourteen battle-ships which are about to follow the "Admiral" class in that dismal procession of veterans to the graveyard, we have three armoured ships to build in the programme of 1907-8.

As Germany builds as fast as we do, and, except in the present year (1906), has invariably laid down her programme before our own, we must, in our programme for 1907-8, add in her provision of 3 armoured ships for 1907-8. This makes 6 armoured ships for 1907-8, instead of the 3 we propose to lay down, or 7 if we desire to have any margin. In 1908-9 we have Germany's provision of 3 armoured ships to consider, and the French programme of 6 armoured ships, sanctioned this year, which will, by that time, be well advanced; in other words, 9 armoured ships, for which 10 must be laid down to give us a margin. The programmes t[illegible]ould be:—

1905-6	...	...	...	4	armoured	ships.
1906-7	...	...	...	3	,,	,,
1907-8	...	...	...	7	,,	,,
1908-9	...	...	...	10	,,	,,

There remains 1909-10, for which Germany will again lay down 3 armoured ships. If, now, we assume France lays down no additional armoured ships for 1907 or 1908, we can be content with 3 or perhaps 4 armoured ships in 1909-10. These are great fluctuations, whereas an average of the whole of these programmes for the five years gives five armoured ships per annum—a figure that exactly corresponds to the average wastage of our armoured ships given in Table M It does not realise the ideal of those who advocate laying down two ships for each one Germany starts, which was, as Sir Edward Grey has pointed out, our old policy in regard to France.

I leave it to the meeting to judge whether it is better to have a steady output, as in Germany, giving regular employment, or a scare programme in 1908.

INDEX TO APPENDICES.

A.—This year's Navy reductions in tabular form.
B.—Battle-ships with unarmoured ends.
C.—Distribution of British Navy in 1906.
D.—Rate of building, Great Britain and Germany.
E.—The Navies in 1917.
F.—Years of anxiety. Our Navy in 1888, 1894, and 1906.
G.—Programmes of the Powers, 1900-7.
H.—Comparative strength by efficiency of guns.
I.—Comparative strength by age of battle-ships.
J.—Number of ships building for Royal Navy, 1900-6.
K.—Shipbuilding activity of Powers in 1901 and 1906.
L.—Lloyd's list of tonnage building in United Kingdom, 1897-1906.
M.—The wastage of our ships through obsolescence, 1900-6.

Relative Strength.

N.—Naval Annual's estimate.
O.—Estimate of "Fighting Ships."
P.—Naval Pocket Book's Estimate.
Q.—Estimate of the "Royal Navy List."
R.—Navy League's comparisons.
S.—General criticism of the Return of Fleets (Great Britain and Foreign Countries).
T.—German programmes, 1906-1917.
U.—Prince Buelow's standard.
V.—British cruisers.
W.—British destroyers: Relative strength.
X.—British expenditure on new ships for 20 years.
Y.—Relative shipbuilding expenditure.
Z.—Relative British and foreign expenditure.

APPENDICES.

A.—The Reductions Announced 27th July, 1906.

The extent of the reductions for two years is best shown in tabular form, as the statement has been repeatedly made that the amount is small:—

—	Original Programme for 2 years, 1906-8.	New Programme for 2 years, 1906-8.	German Programme for 2 years, 1906-8.
Dreadnoughts	8	5	4
Armoured cruisers	0	0	2
Scouts	1	1	4
Ocean-going destroyers ...	5 + ?	2 + ?	24
Enlarged torpedo-boats ...	12 + ?	12 + ?	nil.
Submarines	12 + ?	8 + ?	?
Approximate liability	£18,850,000	£12,600,000	—

(The above compares with an outlay of £21,146,000 for 1903-5. If the Hague Conference is deemed to have failed, one more armoured vessel will be laid down.)

B.—Battleships.

Unarmoured Ends.

As this question is one of the gravest that can possibly come before the country, it is necessary that every civilian should understand that the phrase means no armour protection to the bow and stern at the water-line, so that shell-fire can tear huge holes. The following analysis in respect of armour protection to the water-line deals only with ships classed as first-class in the official return:—

France and Germany.—Complete belts for all battle-ships.

Great Britain.—34 first-class battle-ships have both ends unarmoured.

13 have unarmoured sterns.

13 most modern have complete belts.

At the battle of Port Arthur the "Poltava" was put out of action by a hit on the unarmoured bow.

At the battle of Tsushima, Russian battle-ships with unarmoured parts in contact with the waterline were sunk by gun-fire. After the receipt of all our Naval Attachés' reports on the battle of Tsushima, the memorandum on Admiralty Policy was issued last November on the advice of the present Sea Lords. In it is the grave statement that if £2,000,000 were spent on the armaments, etc., of the "Admiral" class of battle-ships, their unarmoured ends would still leave them vulnerable to a second-class cruiser.

C.—Dispersion *versus* Concentration.

Figures for 1906 to show the dispersion of British force abroad. In 1902-3 the Navy reached its maximum of dispersion. The degree of dispersion is dependent on policy, and the more fortunate state of affairs, in 1906 and 1907, cannot be expected to last indefinitely:—

—	At Home on Commission or Reserve.	Abroad.	Cruising.
Battle-ships	29	16	—
Armoured cruisers, including "Powerful" and "Diadem" classes	20	15	—
Large protected cruisers	10	8	10
Small protected cruisers and scouts ...	18	15	—
Destroyers	95	47	—

(The following addition has been made subsequent to the lecture.)

In a criticism on the lecture in a paragraph dealing with the distribution of ships, *Engineering* says, of the ships with nucleus crews on board, that "experience has shown that upon orders being issued suddenly during the night, three hours sufficed for the vessel to be made ready to depart for war." I immediately took steps to ascertain the position, at the nearest dockyards to the North Sea, Chatham and Sheerness, which would furnish the nearest force, the Channel Fleet being at Vigo. There was not a single ship in full commission outside Chatham Basin except the cruiser "Black Prince." The old battle-ships "Magnificent" and "Royal Oak" also lay in the Medway with nucleus crews on board, as also two protected cruisers, two torpedo gun-boats, twelve destroyers, and five torpedo-boats. In Chatham Basin there were crowded the following:—

Battle-ships.

Ships in full Commission.	Ships with Nucleus Crews.
"Africa."	"Albion."
"Ocean."	"Ramillies."
"Albemarle."	"Repulse."
	"Resolution."

Armoured Cruisers.

"Roxburgh."	"Bedford."
"Sutlej."	"Leviathan."
"Cumberland."	

Protected Cruisers.

"Dido."	"Amphitrite."
"Leander."	"Andromeda."
	"Argonaut."
	"Blenheim."
	"Charybdis."
	"Edgar."
	"Scylla."
	"Thetis."

Scouts.

"Pathfinder."	"Adventure."
	"Attention."

18 destroyers.	6 torpedo-boats.

Torpedo Gun-boat.

"Speedwell."

Engineering leads the public to believe that these ships can get to sea in three hours. What are the facts? The ships could not possibly assemble in the Medway in under a week, even if they have the luck to escape fogs. *Only two large ships can go out of Chatham* Basin at one tide, and the river is not lighted for pilotage at night time. The Atlantic Fleet is dispersed at the three dockyards with half the crews on leave.

It is in face of this state of affairs that the public are led to believe that in the event of a sudden crisis the ships could be assembled in overwhelming force in three hours.

Another point that needs emphasising is, that both with nucleus crews and two year commissions a large number of crews are in an imperfect state of training. Thus, out of our 60 nominal first-class battle-ships, only 26 have been in full commission for the whole of 1906, and of our 38 armoured cruisers built, or building, only 14 have been in full commission for the whole of this year.

——	1891.	1906.
Number of fighting ships abroad	60	127
„ armoured „	17 out of 73	31 out of 77

Practically the whole German Navy is concentrated in easy reach of the North Sea.

D.—Rate of Building.

From date of laying down to date of completion for commissioning:—

No.	Class.	Year Commissioned.	Average time the whole Class took to build.	
			Years.	Days.
2	Barfleur	1894-5	3	135
1	Renown	1897	4	127
7	Royal Sovereign	1893-6	4	78
9	Majestic	1895-8	2	292
6	Canopus	1899-1902	3	257
8	Formidable	1901-4	3	202
6	Duncan	1903-4	3	363
5	New Zealand	1905	2	310
6	Cressy	1901-4	3	264
4	Drake	1902-3	3	216
10	Monmouth	1903-4	3	170
6	Devonshire	1905-6	3	47
	Worst battle-ship on record: "Royal Oak"		5	230
	Worst cruiser on record: "Spartiate"		5	311

It will be seen from the time taken over the small "County" class of cruisers that the question of the displacement of a vessel exercises little influence on the time taken to build.

The following official figures as to German first-class battle-ships may be usefully compared with the above table, as showing that we possess no inherent advantage in the rapidity with which the annual naval programme can be completed:—

Ship.	Programme.	Date laid down.	Date completed.	Time occupied in building.	
				Years.	Months.
Kaiser Barbarossa ...	1898	Aug., 1898	May, 1901	2	9
Wettin	1899	Oct., 1899	Oct., 1902	3	0
Schwaben	1900	Nov., 1900	Dec., 1903	3	1
Braunschweig	1901	Oct., 1901	Sept., 1904	2	11
Preussen	1902	June, 1902	July, 1905	3	1
Deutschland	1903	May, 1903	June, 1906	3	1

German ships are not regarded as completed until after the committee on war-ship trials have finished their task, and left the ship for good. It is noticeable that the German ships are laid down in the year of their programme, instead of being delayed into the following year, as is so frequently the case with our ships.

E.—The Navies in 1917.

The United States, like ourselves, has no fixed programme for a number of years ahead, but she can always be relied on to keep ahead of Germany, especially as she has to distribute her ships between the Pacific and Atlantic.

Both France and Germany have mapped out programmes to the year 1917, but whereas that of Germany is settled, the one for France is subject to capricious changes. The following table gives the state of navies if the programmes are adhered to:—

——	France.	Germany.	Two-Power Standard.
First-class battle-ships	34	38	80 (10% margin)
Armoured cruisers	19	20	50 (25% „)
Scouts and small cruisers...	6 + ?	38	?
Destroyers	109	148	?
Submarines for attack	82	?	?
Submarines for defence	49	?	?
Torpedo-boats	170	?	?

Counting all vessels laid down in 1900, and subsequently as efficient in 1917, we shall have 19, leaving 61 to be laid down in the ten years, 1908-17, inclusive. That is to say, to keep up the two-Power standard we should require 6 "Dreadnoughts" per annum, at least one armoured cruiser, and other cruisers. The possibilities of economy lie in any inability of France to face the expenditure necessitated by the above programme. The calculations of France and Germany are admittedly based on the idea that some ships laid down prior to 1900 will be reconstructed. Should Great Britain abandon her present policy of abstaining from all efforts at reconstruction, then the lives of vessels will be prolonged and ships laid down before 1900 can be included. The hesitation about reconstruction is due to the inherent defect of unarmoured ends in these vessels. (*Vide* Table B, and Cawdor Memo. of 1905, p. 31.)

F.—Years of Anxiety.

The three most recent years in which there has been great anxiety about the future position of the Navy were 1888, 1894, and the present year. The following table gives our position in each year, according to official returns with the following alterations:—

1. Return No. 12, June, 1888, No. 218.—All wood hulls have been excluded, as well as six British battle-ships requiring large repairs.
2. Return No. 129, 24th April, 1906.—Vessels not being maintained are excluded. The French armoured cruiser "Vauban" has been excluded from this list, and all

French and German unprotected cruisers. The "Royal Sovereign," "Nile," "Trafalgar," "Centurion," "Barfleur," and the "Renown," used as a yacht, are included, though it is freely rumoured that with the exception of the "Renown," it is not the intention to spend any more money on maintenance.

Built and Building.	1888.			1894.			1906. (Built, building and projected).	
	Great Britain.	France + Russia.	France + Germany.	Great Britain.	France + Russia.	France + Germany.	Great Britain.	France + Germany.
Battle-ships.								
1st Class ...	41	26	29	22	25	22	57	57
2nd Class ...				12 | 45	21 | 52	20 | 54	0 | 57	13 | 80
3rd Class ...				11	6	12	0	10
Coast-defence vessels of over 2,000 tons and more than one heavy gun.	11	19	8	15	20	6	0	3
Armoured cruisers	12	9	2	18	20	9	38	32
Other cruisers ...	77	74	85	113	67	91	71	71

So far as this table affords any indication, it is that our position is at the least about to become as bad as in 1888 or 1894, when the Chambers of Commerce took action.

G.—Programmes.

It may be said that our large superiority in older ships, owing to the building efforts up to 1900, kept us at the two-Power standard until 1905 or 1906. With the advent of entirely new types with much heavier armaments, it becomes dangerous to rely on these old types, especially as we have seen they have all got unarmoured ends. The following table shows the programmes of the Powers in first-class battle-ships:—

	1900	1901	1902	1903	1904	1905	1906	1907	Total.
Great Britain (28) ..	2	3	2	3	4	1	3	2	20
Germany (13) ...	2	2	2	2	2	2	2	2	16
United States (15) ...	2	0	2	5	1	2	1	2	15
France (10)	2	0	4	0	0	0	3	3	12

Thus our total of 20 battle-ships compares with 31 for Germany and the United States, and 28 for France and Germany.

The figures in brackets show the number of first-class battle-ships which will be less than 18 years old at the end of 1907, which are *not* included in the above table of programmes.

As regards "Invincibles," of which so much has been said, we shall have three in 1910, to two for Germany, two for the United States, and none for France.

It may be contended that we should classify in "Dreadnoughts"; battle-ships with 8-inch guns and above in their secondary armaments; and lastly battle-ships of earlier types.

Our table then reads as follows:—

	Fighting equivalent of Dreadnoughts.	Intermediates.	Earlier Types.
Great Britain	8[1]	8	4
Germany	4	Nil.	10
United States	5	13[2]	Nil.
France	6	Nil.	6

[1] Includes two "Lord Nelson's."

[2] Includes three intermediates, not in the first table, the United States having initiated the policy.

This still leaves us well below the two-Power standard in the future, but it improves the position considerably as against Germany. Two of our "Dreadnoughts" will not be laid down until March, 1908, whereas all four for Germany will then have been building for some time, and Germany will, in June or July, 1908, lay down two more not included in the above table. These two will, however, be ready in 1910, and it is the position that year which should dictate our 1906-7 and 1907-8 programmes.

H.—Comparisons by Guns.

Strength, according to the efficiency of guns mounted in battle-ships or coast-defence vessels. Only guns of a theoretical perforation of 7 inches, or more of the best armour at 5,000 yards, with capped projectiles, according to the gun tables in Jane's "Fighting Ships," are included in this list, and it includes battle-ships to be laid down in 1906 and 1907. It is assumed from the Press reports that the German battle-ships will carry sixteen 11-inch guns, and corrections must be applied if wrong:—

Theoretical perforation of Armour at 5,000 yards. =	17½" to 18"	14" to 16"	11" to 13"	7" to 10½"
France	40	16	110	64
Germany	64	—	40	40
France and Germany... ...	104	16	150	104
Great Britain	48	84	40	40

(In March, 1908, according to programme, 20 British guns, or possibly 30, will be added to column (1), making 68 or 78 guns capable of perforating 17½-inch armour.)

It should be distinctly understood that a very large number of British battle-ships have no armour at the water-line on the bow or

stern, and the large secondary armaments in German battle-ships, of which the above table takes no account, were given for the special purpose of sinking these battle-ships by rapid shell fire directed at their unarmoured ends.

I.—Strength According to Age of Battle-Ships.

Sir Henry Campbell-Bannerman:—"Are none of the ships of the other Powers obsolescent?"—House of Commons, 27th July, 1906.

All first-class battle-ships built or building on 31st December, 1907, less than

Nation or Combination.	23 years old.	18 years old.	13 years old.	8 years old.	Laid down or projected 1905-7.
Great Britain	58	52	37	19	6
France and Germany	51	49	41	28	12
Germany and United States (a) ...	56	55	48	31	10
France	23	22	17	12	6
Germany	28	27	24	16	6
United States (a)	28	28	24	16	4
France, Germany, and United States (a)	79	77	65	44	16
British force as a Percentage of the three Powers	p.c. 73.4	p.c. 67.5	p.c. 56.9	p.c. 43.2	p.c. 37.5

(a) Does not include any programme for the United States in 1907, but four battle-ships are contemplated, and if this is correct, four should be added to each column for United States.

The rapid reduction in the British proportion of first-class battle-ships as we discard those laid down previous to 1895, is explained by the following table, from which the "Montagu" is, of course, excluded. The table shows first-class battle-ships laid down by the Powers in the quinquennial periods named, and in a final period, 1905-7, gives the ships building or projected for those three years:—

	1885-9.	1890-4.	1895-9.	1900-4.	1905-7.
Great Britain	6	15	18	13	6
France	1	5	5	6	6
Germany...	1	3	8	10	6
United States	Nil.	4	8	12	4 (a)

(a) Does not include any programme for the United States in 1907. As stated elsewhere, four battle-ships are contemplated.

The old ships that are used to swell the table of British ships are a danger and a delusion. We have in the Returns of Fleets (Great Britain and Foreign Countries) eight so-called first-class battle-ships launched prior to the Naval Defence Act; France has seven, and Germany none. Of the seven French battle-ships, six had been reconstructed and the seventh is in hand. Of the eight British battle-ships, the "Nile" and "Trafalgar" are still maintained, and none of the ships have been reconstructed. The "Nile" and "Trafalgar" have undergone alterations to their secondary armaments. The

"Sans Pareil" and the five "Admiral" class have had a total sum of £1,489 spent on them during the last 18 months. After months of pretence concerning these vessels, the admission was obtained from Mr. Robertson on 7th November that "the expenditure (£1,489) was not for the purpose of maintaining the ships in a state of readiness for war, but with a view to their upkeep pending removal to the sale list next year."

We have reduced the Royal Dockyards by 8,676 men during the last five years, and of these nearly 7,000 went last year. Similar reductions have taken place at Woolwich and the private yards. The causes can be sought in the following four tables:—

J.—Number of Ships Under Construction.

Ships of over 5,000 tons under construction for the Royal Navy on the 1st April, 1900, to 1st April, 1906, inclusive:—

Years.	Battle-ships.			Cruisers.			Grand Total.
	Dock-yards.	Con-tractors.	Total.	Dock-yards.	Con-tractors.	Total.	
1900	8	7	15	4	12	16	31
1901	10	6	16	8	15	23	39
1902	7	5	12	9	13	22	34
1903	6	6	12	8	14	22	34
1904	7	5	12	7	8	15	27
1905	4	4	8	7	9	16	24
1906	4	2	6	4	7	11	17

Average numbers under construction for 7 years = 30

Anticipated numbers under construction on completion of three "Invincibles" and after laying down the new ships at the end of the financial year, 1907-8 ... ... = 6 (Of these, two may be building in the private yards.)

K.—Battle-ships Building and Projected on 1st April, 1901 and 1906.

	1901	1906	Present day.
Great Britain	19	9	6
France and Germany ...	15	20	19
France and United States	15	25	21
Germany and United States	22	21	16

In 1907 Germany will lay down two additional battle-ships and the United States probably two.

L.—Warships Building in United Kingdom for all Countries.

The following table has been kindly furnished by Lloyd's Register of Shipping:—

Number and displacement of war-vessels under construction in the United Kingdom at the end of September, 1897-1906, according to

the Returns published by Lloyd's Register of British and Foreign Shipping:—

	No.	Tons.		No.	Tons.
1897	87	318,612	1902	58	303,202
1898	92	376,435	1903	64	327,570
1899	82	412,980	1904	67	342,930
1900	69	427,885	1905	42	264,310
1901	50	375,045	1906	47	203,345

The maximum reached was in March, 1900, when 450,000 tons were in hand.

M.—The Wastage List.

Ships of over 4,000 Tons Removed from the List of War-ships being Maintained.

	1900	1901	1902	1903	1904	1905	1906
Battleships	3	7	1	6	—	4	8
Coast Defence Ships	1	2	—	—	1	1	—
Cruisers, 1st Class	6	2	—	—	3	6	—
Cruisers, 2nd Class	2	0	1	1	1	5	—

Average Wastage per annum, Battle-ships and Coast-Defence Vessels ... 5
" " " Cruisers of over 4,000 tons 4

In the 14 years ending 1902 we built at the rate of 3 battle-ships and 7 cruisers per annum. Taking armoured cruisers only, in six years ending 1902 inclusive we laid down an average of $3\frac{1}{2}$ battle-ships and $4\frac{2}{3}$ cruisers, or 8 armoured vessels a year. Last year's programme was for 1 battle-ship and 3 cruiser-battle-ships, this year for 3 battle-ships, and next year for 2 or possibly 3 armoured vessels.

N.—The Naval Annual.

Deducting the "Montagu," the Naval Annual gives the strength in first-class battle-ships as follows:—

——	Great Britain.	Germany.	France.	United States.
Built	44	18	11	27
Building	6	6	6	
Projected 1906-7 ...	3	2	6	?
	53	26	23	27
		49		

United States and Germany = 53.

Ten per cent. margin over next two Powers requires 58 battle-ships for Great Britain; actual number, 54. The United States Navy Department propose to increase the original programme of 1906 by two battle-ships, in which case the two-Power standard requires us to have under Naval Annual classification 61 battle-ships instead of 53.

O.—Estimate from "Fighting Ships."

(Includes Cruisers.)

Rate.	Great Britain.	United States + France.	United States + Germany.	France + Germany.
I.	4	3	3	Nil.
I.—II.	2 } 17	6 } 28	2 } 18	8 } 14
II.	11	19	13	6
III.	24	9	19	14
IV.	15	13	3	10
V.	20	19	25	20
V.—VI.	8	15	8	15
VI.	13	17	10	17
VI.—VII.	8	8	2	6
VIII.	Nil.	3	14	16

The remaining vessels belong to the "Blake" period, and protected cruisers or obsolete vessels.

P.—The Naval Pocket Book.

Great Britain's position relative to that of any two Powers:—

Battle-ships launched in or since 1895 of 12,000 tons or upwards	+ 6
Battle-ships over 8,000 and under 12,000 tons launched since 1887	− 6
Other battle-ships and Sea-going Coast-defence ships	− 19
Armoured Cruisers, most powerful types	+ 5
Armoured cruisers of over 6,000 tons, built since 1890 and not included above	− 6
Other armoured cruisers	− 4

The above in no case gives the requisite margin laid down by the Admiralty as a minimum.

Q.—Battle-Ship Strength According to the "Royal Navy List," October, 1906.

	Great Britain.	United States and France.	United States and Germany.	France and Germany.
A	25	30	27	30
B	15	12	10	10
C	12	9	5	8
D	5	3	2	5

A=building, ordered or launched since 1st October, 1899.
B=launched between 1st October, 1895, and 30th S. pt. 1899.
C= " " " 1891, " " 1895.
D= " " " 1887, " " 1891.

R.—Navy League's Comparisons.

Under a Common System of Points and Classing Effective Ships.

Summary of force in battle-ships and armoured cruisers, including ships to be laid down in 1907:—

Probable actual strength, allowing for efficiency.	Place by No. of		Battle-ships.		Armoured Cruisers.		Total.		Not more than 10 years launched	
	Units.	Points.	Units.	Points.	Units.	Points.	Units.	Points.	Destroyers.	Large Torpedo-boats.
England ...	1	1	66	588	38	279	104	867	92	37
France ...	2	2	43	353	24	136	67	489	62	104
Germany ...	3	4	41	332	10	86	51	418	73	7
U.S.A. ...	4	3	30	345	15	107	45	452	20	12
Japan ...	6	5	17	153	13	110	30	263	51	85
Italy	5	6	22	141	10	71	32	212	27	28
Russia ...	7	7	17	149	6	43	23	192	96	18

Summary of force in effective battle-ships, armoured cruisers, and modern destroyers, including ships to be laid down in calendar year, 1907:—

—	Place by No. of		Effective Battle-ships.		Armoured Cruisers.		Total.		Not more than 10 years launched.	
	Units.	Points.	Units.	Points.	Units.	Points.	Units.	Points.	Destroyers.	Large Torpedo-boats.
England ...	1	1	44	475	38	272	82	747	92	37
U.S.A. ...	3	2	25	302	15	107	40	409	20	12
France ...	2	3	23	274	24	127	47	401	62	104
Germany ...	4	4	24	257	10	86	34	343	73	7
Japan ...	5	5	12	133	13	110	25	244	51	55
Italy	6	6	9	101	10	70	19	171	27	28
Russia ...	7	7	8	112	6	43	14	156	96	18

S.—The Return of Fleets (Great Britain and Foreign Countries).

"I am desirous that the Return should give an accurate, complete, and faithful picture of the strength of the Navy."—Mr. Edmund Robertson, 8th November, 1906.

This Return is the only official information granted to Parliament.

It claims in the explanatory notes to include only vessels in "the official effective fighting strength of each Navy." Of the numerical statement of vessels arranged in classes, the explanatory notes say that it "shows in a convenient form the comparative strengths of the various Powers."

The *bonâ-fides* of the Admiralty in this matter can be tested by the following criticisms:—

1. The 86 protected cruisers given in the list include "Apollo," "Intrepid," "Spartan," "Retribution," "Rainbow," "Tribune," "Naiad," "Melampus," "Andromache," "Pique," "Pomone," "Pactolus," "Philomel," "Medea," and "Medusa." None of these vessels, except the "Philomel," have had any money spent on them for maintenance since October, 1904. Their names were long ago

removed from the list of effective ships given on page 270*e* of the "Navy List," and they all appear on page 405 of the "Navy List," of vessels available for subsidiary services, hulks, and vessels for sale. The "Philomel" had over £23,000 spent on her in 1903-4. She was under the Redistribution Scheme of October, 1904, put on one side without maintenance. In 1906 it was decided to refit her for some subsidiary purpose, but it was found at Haulbowline that such was the deterioration of two years that an extensive refit was again necessary.

2. As regards battle-ships, there are twelve included in the return on which no money has been spent for maintenance. The names of these battle-ships are: "Sans Pareil," "Anson," "Camperdown," "Benbow," "Howe," and "Rodney," included as first-class battle-ships; "Colossus," "Edinburgh," "Thunderer," and "Devastation," included as second-class battle-ships; and "Hero" and "Conqueror" as third-class battle-ships. It is officially stated that less than £1,500 has been spent on the six so-called first-class battle-ships during the last 18 months, and that this sum was not spent with a view of maintaining them, but with the view of preventing any extensive deterioration in their sale value.

3. On 13th June, the Financial Secretary to the Admiralty explained that these battle-ships "are on the verge of becoming obsolete, and it is, therefore, a matter of choice whether or not they should be included in a list which is meant for general information, and does not profess to contain any detailed classification. It has been considered, on the whole, preferable that they should be included for the present until they are finally removed from the list of the Navy." The quotations I have given from the explanatory notes of the Return show this statement to be inaccurate. I think I have also shown how misleading was Lord Tweedmouth's assertion in the House of Lords, 30th July, that "Every man from that Return can judge for himself what the relative strengths of the British fleet and other fleets now are."

T.—German Increase.

The programmes of the German Navy, sanctioned under the Navy Bill of 1906, are given in the following table:—

Year.	Battle-ship.	Armoured Cruisers.	Small Cruisers.	Torpedo-boat Divisions.	Sum to be Spent.
1906	2	1	2	2	£12,336,000
1907	2	1	2	2	13,496,000
1908	2	1	2	2	14,000,000
1909	2	1	2	2	15,030,000
1910	2	1	2	2	15,423,000
1911	1	2	2	2	15,667,000
1912	1	2	2	2	15,931,000
1913	1	1	2	2	16,024,000
1914	1	1	2	2	15,800 000
1915	1	1	2	2	15,838,000
1916	1	1	2	2	15,987,000
1917	2	—	2	2	16,132,000
Totals ...	18	13	24	24	

As showing the increase over the Navy Bill of 1900, it may be stated that the sum to be spent for 1906 under the Bill of 1900 was £9,877,500, whereas £12,336,000 is to be spent.

The following table, from the report of the Treasury Committee of 1859, on the state of the Navy, shows how we maintained our position against our chief rival in the past. A programme of three ships a year cannot possibly keep up such a standard against Germany in the future:—

Year.	Ships of the Line.		Frigates.	
	British.	French.	British.	French.
1778	126	68	126	54
1794	145	77	176	72
1804	175	50	244	32
1812	245	113	272	72
1815	218	69	309	38
1820	146	58	164	39
1825	120	58	156	42
1830	106	53	144	67
1840	89	44	108	56
1845	88	46	104	50
1850	86	45	104	56

U.—Prince Buelow's Standard.

In view of Prince Buelow's declaration that the Powers require navies in proportion to their maritime interests, and that "the German Navy is still very small in proportion to her oversea commerce—judging their relative dimensions by those of other nations," the following figures are included:—

	Miles of Coast Line.
British Empire	42,989
Germany	4,212
United States	17,854
France	8,901
France, Germany, and the United States	30,997

	British Empire	Germany.	Standard proportion British to German.
	Tons.	Tons.	
Steam tonnage in gross tons (1905-6, Lloyd's Register)...	15,410,000	3,094,000	5 to 1
Annual Clearances in Foreign trade in tons (1904) ...	79,250,000	16,349,000	5 to 1
Value of direct trade by sea in 1904	£1,462,000,000	£260,000,000	5¼ to 1

In addition it should be stated that while German Colonies are unimportant, so that the Empire may be said to be concentrated in Europe, and united by land roads, only 1·1 per cent. of the British

Empire is in Europe, and it is united to the remainder by sea roads, viz., 34·4 per cent. in America; 25·8 per cent. in Australasia; 21·5 per cent. in Africa; and 17·2 per cent. in Asia.

V.—Cruisers.

Extracted from the debate, the House of Lords, 21st March, 1905:—

Lord Spencer.—"I have always maintained that we must have a much larger number of cruisers than any two other Powers."

Lord Selborne.—"The duties of cruisers are two-fold. They have to act as the eyes and ears of the battle-fleet, and also to protect our trade. Now, I can only say that in that respect I am more anxious on the subject of cruisers than I am on the subject of battle-ships. . . . I do not think we have any too many fast armoured cruisers, and I should be very sorry if any succeeding Board of Admiralty in any way slackened off in their supply to the Navy of those ships."

The only comment to be made on these speeches is, that we have given up building cruisers altogether, and it is even claimed that the three "Invincibles" of last year's programme, voted as cruisers, are in reality battle-ships.

The memorandum on Admiralty Policy, 30th November, 1905, page 24, stated that, in the opinion of the Board, the best of the unarmoured cruisers which had been retained for the present must be allowed to die out within a few years; or, in other words, 86 cruisers in the Return of Fleets, or 71 mentioned in the Navy List, must vanish in a few years, leaving 35 armoured cruisers and 3 "Invincibles" to do their duties. There are in addition 8 "Scouts" of limited coal endurance.

An earlier opinion of the Board was given in the Admiralty memorandum, 6th December, 1904, on the redistribution of the Fleets. Where dealing with the armoured cruisers it is written:—

> "With such ships even the best so-called 'protected' cruisers would engage at a considerable disadvantage, and the slower or smaller 'protected' cruisers would be hopelessly outmatched; their only hope of safety would be in flight, and they could not flee because they have not the necessary speed."

This criticism, while covering the case of nearly all our protected cruisers, is scarcely a satisfactory explanation as to how the Admiralty propose to provide all our fleets with scouts and look-outs from 35 armoured cruisers and 3 "Invincibles," and yet arrange for chasing down 24-knot protected cruisers, such as Germany is building at the rate of two a year. (*See* Appendix T.)

Obviously these vessels are intended, if conditions are favourable, to attack our commerce. The natural answer is to build more cruisers; but this is precisely what we are not doing. We had the "Invincibles" under last year's programme, but to use "Invincibles" to search for little commerce destroyers is an enormous waste of force. This year no cruisers are to be laid down, next year a mother ship for destroyers, but still no cruisers, and the year after, in the endeavour to keep the Navy Estimates from rising, as the "savings" have

already been pledged, the Admiralty will be torn between the conflicting needs of battle-ships, cruisers, and destroyers.

I doubt if the Chambers of Commerce realise that the plain meaning of the Admiralty statement is, that by the time we can build a cruiser, starting from next year's programme, we shall have only 35 cruisers and 3 "Invincibles." Tone the Admiralty's statement down as we may, its gravity can hardly be exaggerated when compared with the opinions of high authorities as to our requirements, *e.g.*:—

a. The Prize Essayist in 1903 said that *apart from the defence of commerce*, we required 74 cruisers for scouting and look-out duties with the fleets in a war with two Powers.

b. Admiral Sir Cyprian Bridge told the Food Supply Commission that *apart from our scouts and look-outs*, we required a numerical advantage of 50 per cent. as compared with the hostile cruisers attacking commerce.

Clearly if one cruiser escapes we must send at least two after her, or a margin of 100 per cent. If two cruisers escape, three will be required, or a margin of 50 per cent., and so forth. So foreigners will decline to play our game, and will act in small detachments.

This is the true inwardness of Germany building 24-knot cruisers at the rate of two a year. At the same time she reaps the full advantage of the turbines, which add about two knots to the speed.

It cannot be pretended that even for peace duties we can manage without a large supply. The refit of the "Philomel" is a case in point. This vessel had £23,000 spent on her in 1904. She was set aside as valueless the same year. Having deteriorated for two years, she is again towed round to Haulbowline to be refitted at great cost for peace service. Consequently the policy of 1904, of employing only ships fit for fighting, is breaking down for lack of fighting ships.

In consequence of the Russo-Japanese war, where both nations neglected all considerations of commerce defence, a practice has arisen of reckoning armoured cruisers as available for the line of battle. Foreign navies, prepared to sacrifice their commerce, no doubt will be able to use their cruisers to assist the line of battle, if in any way fit for the purpose, or in the alternative, divert them to the attack of lines of communication, even as the Boers forced on us inordinate preparations by sometimes appearing as guerillas and sometimes as an army.

W.—Destroyers.

The life of a destroyer is a very short one, and it is in view of this fact that the following table furnished by the Admiralty is alarming. It should be clearly understood that Germany will for some years to come lay down 12 additional destroyers per annum. The Admiralty state that the number of destroyers laid down since 1899, inclusive of those laid down under this year's programme, is as follows:—

Great Britain	44
France	53
Germany	48
Total	101

The Germans reckon only ten years as the life of a destroyer. In our published official lists of destroyers we include among our own all the old vessels, 58 of them over ten years old, while a large number will reach that limit shortly. We maintain 36 destroyers in full commission, and 24 of these are at Portsmouth and Plymouth. On the other hand, the Germans have 33 in full commission at Wilhelmshaven.

As with our ships, so with our destroyers; they will have to keep the sea, and must spend one day in harbour, coaling, etc., for every two at sea. It follows that to secure equality on the field of operations against an enemy waiting for his opportunities, we must have a superiority of one-third.

In addition, Great Britain has laid down 24 of the large torpedo-boats known as "coastal destroyers." Clearly, to class them with modern destroyers, costing 3 to 7 times as much, is inadmissible. Even former types of destroyers of less nominal speed, such as the "River" class, cost twice as much as the new coastals.

The mission of the destroyers at Port Arthur was to get in the first blow. It is stated that we are to have in the Mediterranean only 18 destroyers. The question must be asked: What can 18 destroyers hope to achieve in regard to the half-dozen French torpedo bases? Taking all sorts of first-class torpedo-boats as above, France and Germany have 516 torpedo craft and 91 submarines to our 248 torpedo craft and 40 submarines. These are threats to the battleships necessitating, as I have pointed out in my paper, a margin of safety against possible successes.

X.—British Expenditure on New Ships for 20 Years.

For 20 years past our average expenditure on new construction has been £6,509,000 per annum, but at the beginning of this period the cruisers we built were of the "Mersey" type, or one-eleventh of the cost of the "Invincible," while the battle-ships of to-day are 2½ times as expensive as the "Admiral" class of that day. So the average for the ten years ending 1906 has risen to £8,370,000. At the beginning of this ten-year period battle-ships cost half what they do now. In addition, in 1886 we only considered France; by 1896 Russia had appeared on the scene; and by 1906 we have Germany, the United States, and Japan as well. The official estimate of the value of the Navy, allowing for depreciation, is £127,000,000. Thus an annual expenditure of 5½ millions sterling would do for replacement, but for the rise in the cost of vessels. For the 15 years ending 1884, new construction formed about one-seventh of our total Navy vote. With compound armour the amount jumped up to about one-fifth. In 1888-9 the ordnance vote was transferred to the Navy. Allowing for this transfer, new construction now forms from one-fourth to one-third of the remainder.

Y.—Relative Shipbuilding Expenditure.

A frequent error made in comparing the new construction expenditure of the Powers is that no regard is paid to the concealed expenditure under other votes. Thus, gun mountings, which are so heavy an item of expenditure in ships, appear under new construction in Great Britain, but not so in France and Germany. The copy

of Lord Brassey's pamphlet sent to me gives the new construction vote of France and Germany as £6,731,610 (p. 8). The figure for Great Britain, including gun mountings, in 1906 is £9,252,000; but the only one mentioned in the copy of the pamphlet is the swollen figure of 1904 (£11,600,000), when we purchased the "Swiftsure" and "Triumph." The fallacy underlying these figures is one I have frequently drawn attention to. To get at the correct figures one must include the whole preparation of ships for war, viz., shipbuilding, repairs, and armaments.

Mr. W. H. Cowan, M.P., of the Liberal Navy Committee, on 14th November, obtained the exact corrective required by a question in the House of Commons.

Aggregate Sums Voted or Expended for Shipbuilding, Repairs, and Armaments.

Great Britain.

	1901-2. Actual Expenditure.	1906-7. Estimate.
	£	£
Shipbuilding	8,865,080	9,252,131
Repairs and maintenance of *matériel* (i.e., hulls, machinery and equipment, anchors, cables, &c.), but not stores ...	1,771,420	1,628,100
Armament, and first outfit of ammunition for new ships and re-armed ships.	1,546,600	1,624,500
Repairs and maintenance of guns and torpedoes	133,900	67,400
Total	12,317,000	12,572,131

France and Germany.

	1901. (Expended.)	1906. (Voted.)
	£	£
France (financial year, January to December)	6,096,446	6,293,320
Germany (financial year, April to March)	5,982,011	6,764,063
Total aggregate	12,078,457	13,057,383

From the above it is clearly seen that whereas formerly our expenditure exceeded that of France and Germany, it is now inferior. Yet ten days after this positive proof is obtained by the Liberal Navy Committee, *The Speaker*, in its issue of 24th November, prints the following grossly misleading statement:—"In the shipbuilding votes for the current year the British Parliament has made provision far exceeding the two-Power standard." I venture to forecast from a careful study of existing programmes that our expenditure in connection with the preparation of the war *matériel* of the fleets will be 3½ millions sterling less than the combined expenditure of France and Germany next year.

Z.—Relative British and Foreign Expenditure.

Sir Edward Grey at the Eighty Club on 31st May, 1905:—

> "The present Army and Navy Estimates apparently have no relation whatever to the policy of Imperial defence which he (Mr. Balfour) has laid down. The policy points to the reduction of the Army Estimates and considerable expenditure on the Navy; and we understood that the present Government intended to reduce the Army Estimates, but that it would certainly spare nothing to maintain a strong Navy. Well, it has done just the opposite; it has increased the Army Estimates and reduced the Navy Estimates. Now, I agree that in much of the changes in the Government there appears to be what makes both for economy and efficiency; but I confess I am a little alarmed by statements which I have seen with regard to our reserve of naval guns. I wish before the Government began applying their doctrines of economy to the Navy they had applied those doctrines to the Army, where I believe there is a much larger and much safer field for economy."

I have seen several comparisons of expenditure lately which convey erroneous conclusions. The writers forget—as reference books omit to mention as well—that the German Estimates do not include pensions, that the French Estimates underwent a fictitious decrease in 1902 and subsequent years, involving about a million sterling, through the transfer of the Marines to the War Department. The Admiralty figures, allowing for pensions, show that the relative increase for the last two years of the German Estimates in comparison with our own is £7,086,000. What will be the position next year? Both our own and the German Estimates are pledged in advance, the Germans to increase £1,160,000, and ours to decrease by what I estimate to be £1,800,000. This gives a relative German increase for the three years ending 31st March, 1908, of £10,000,000 sterling. If our Estimates after that remain stationary, the German Estimates sanctioned for 1909 provide for a further increase of £1,534,000. We have thus the huge relative increase of 11½ millions sterling.

The only point that can possibly be in dispute is my estimate as to our own decrease next year. It is founded on Mr. Robertson's speech on 27th July. Mr. Robertson then said:—

> "I do not think that the full financial effect of our proposals will be felt till next year. The financial effect on next year's Estimates (1907-8) will be that there will be a lightening of those Estimates to the following extent:—
>
> "Vote 8, by the sum of £1,305,308.
> "Vote 9, by the sum of £1,488,680.
>
> "Total, £2,793,988."

These reductions, he explained, were on what would have been the case if the full 1906-7 programme had been persisted in. A mother ship for destroyers (Lord Tweedmouth said a "scout") was to be laid down in June, but "the amount to be taken for new vessels in 1907-8 was to be limited to a small sum" in order "to emphasise to the Hague Conference the good faith of the British Government in its desire to bring about a reduction of armaments." Since the example was set on 27th July, the German, Japanese, and American

programmes have been increased by fresh demands, the South American Republics have begun to order war-ships again, and the naval budget of every important Power, except our own, has gone up.

As less than half-a-million is being taken for the new construction of this year, the emphasis on a small sum can only mean that about a quarter of a million at the outside is to be taken.

Mr. Robertson also said: "I do not want the Committee to come to the conclusion that what I have said exhausts the list of possible economies." This obviously refers to the saving through ceasing to effect repairs on 16 armoured ships which have hitherto been maintained with nucleus crews, and the placing of 11 armoured ships out of full commission. I have, therefore, given a conservative estimate, allowing a large margin for contingencies, when I put the decrease at £1,800,000. Such contingencies include the automatic rise of expenditure, once referred to by Mr. Robertson as £665,000, the new dock at Portsmouth, and possible expenditure on Rosyth.

I have compared our naval expenditure with the German, but that is not the whole story as in the view of the Cabinet part of the naval expenditure in this country is to balance the huge military strength of gunnery. Thus Mr. Haldane said at Brighton this month:—"The expenditure on our Navy might be set against the expenditure of those foreign Powers who laid out their resources in taking two years of the best periods of the lives of their young men for compulsory service. The Statesmen of this country, who advocated compulsion, would be calling on the nation to pay twice over for the same thing."

OPINIONS AS TO THE MEANING OF THE TWO-POWER STANDARD.

"Beyond comparison with any two Powers."—*Report of the Three Admirals, 1888.*

In his speech introducing the Naval Defence Act, 1889, Lord George Hamilton said:—

> "The paramount idea underlying the utterances of those who in previous years have held my position and that of Prime Minister . . . has been that our establishment should be on such a scale that it should at least be equal to the naval strength of any two other countries. (Hear, hear.) . . . No amount of foresight or calculation can anticipate naval combinations and naval movements. For the purpose of meeting such unexpected blows we should have a considerable margin of reserve."

Sir Edward Grey in the House of Commons, 1st March, 1904, said:—

> "In 1885 the standard set and maintained by Mr. Gladstone's Government was to lay down two ships for every one ship laid down by the French Government. Under the Naval Defence Act, the standard changed. and there came the two-Power standard. That standard must not be taken to apply to any two Powers in particular, but to the two Powers which at the time of speaking had the largest Navies."

Lord Selborne in the House of Lords, 21st March, 1905, said:—

"The two-Power standard never had applied to any two particular nations, but always to the two strongest naval Powers. . . . If you compare the margin of security which Parliament provided under the Naval Defence Act of 1889 with the margin of security we at present enjoy, the margin was greater then than now."

Lord Cawdor on 3rd November, 1906, said:—

"The test the Admiralty applied to naval efficiency and the standard they had set up for years past as that which must be maintained was that we must be strong enough in battle-ships alone to defeat any combination of any two Powers, and that we should have a margin over and above this for contingencies of some ten per cent. This was the minimum which they had considered safe. With respect to our cruiser power, we needed and must maintain far more."

Extract from the Parliamentary debates, 31st July:—

Mr. Bellairs asked the Prime Minister whether he had communicated to the Admiralty his view that the standard of France and Germany was a preposterous one?

Sir H. Campbell-Bannerman:—"I think they are quite aware of my views."

THE HOUSE OF COMMONS,
13th November, 1906.

Viscount Turnour:—To ask whether it was the settled policy of the Admiralty in framing their shipbuilding programme to meet only those programmes of foreign Powers which were actually sanctioned by their respective Parliaments.

Mr. Robertson:—The answer is in the affirmative. The Admiralty were also guided by the number of vessels actually laid down, and the progress made in their construction.

(On 27th July, it should be noted, Mr. Robertson made the announcement that the programme for the following year, 1907-8, would be cut down to two armoured ships to be laid down at the end of the financial year or March, 1908. If the Hague Conference failed to realise the Government's hope, three armoured ships would be laid down.)

THE HOUSE OF LORDS,
30th July, 1906.

Lord Tweedmouth:—It was wise and right to reduce the programme as it stood when the noble Earl left office. It was proposed, as the noble Earl said, to build four armoured ships. The outlook then was that France was *going* to lay down several very large battle-ships; the United States were going to lay down two new great battle-ships, besides two that had before been carried; Russia was going to lay down one first-class battle-ship and two armoured cruisers; and Germany was going to lay down two very large battleships and one armoured cruiser. *It was in view of this knowledge that the programme was originally framed.*

The late Civil Lord of the Admiralty has denied that these programmes were taken into consideration when our own was framed in November, 1905. The French and German programmes were only sanctioned in the spring of this year.

It is worth while to note in connection with the above statements how the naval policy of Great Britain fluctuates. In 1889, under the Unionists, we had the Naval Defence Act, in which the money was provided at once for a programme over a period of five years. In 1894, under the Liberals, we had a programme for five years, the money being provided year by year. "The new scheme of construction," said Lord Spencer in his statement explanatory of the Navy Estimates in 1904, "forms part of a complete programme which has been arranged for a term of five years." The Secretary to the Admiralty explained that "the cost of the programme behind is very much larger," and "will involve for the five years ensuing a very liberal provision by Parliament of public money to meet the needs of the Navy." At Sheffield, 19th October, Lord Tweedmouth, forgetting that Mr. Robertson had given away next year's programme in advance, said: "The Admiralty believed that the best course was year by year to form the programme of the year for the necessities of the year estimated according to the exact amount of work which had been carried out by our foreign rivals."

American Policy:—

> "I would rather see the country abandon the Monroe Doctrine and give up all thought of building the Panama Canal than to see it attempt to maintain the one and construct the other while refusing to provide the means which can alone render its attitude as a nation worthy of the respect of nations and of mankind. There is one thing we must not do, and that is to bluff. Therefore, gentlemen, keep on building up and maintaining at the highest point of efficiency the United States Navy or quit trying to be a big nation."—*President Roosevelt, 22nd June, 1905.*

German Policy:—

> "Germany must have a fleet of such strength that a war, even against the mightiest naval Power, would involve risks threatening the supremacy of that Power."—*Preamble of the German Navy Bill of 1900.*

Admiral The Hon. Sir EDMUND R. FREMANTLE, G.C.B., C.M.G. (Rear-Admiral of the United Kingdom):—I have not had the opportunity of reading the paper or the valuable appendices to which the lecturer has referred, but at all events we have in our hands one valuable appendix, namely, the diagram showing the want of continuity in the British shipbuilding policy. I am very glad the lecturer mentioned something about the Blue-Water School, because it is universally misunderstood. The late Admiral Colomb was the first to state what our policy ought to be, and the idea, generally speaking, is that we do not want so many defences round the coast, but that we want a mobile Army. He always laid stress on the necessity of that, and those who read it in a different way and talk about "no necessity for defence school," or something of that sort, wilfully misunderstand it, and wish to give it a bad name. The idea of the Blue-Water School is, that we want a very good Army, but we do not want to overdo the defences, whether on the coast or in the interior. I feel inclined to mention some particular defences with which I am acquainted, which, I think, are distinctly in point. When I was in command at Plymouth I went on more than one occasion with Lord Wolseley,

who was then Commander-in-Chief, and Sir Redvers Buller, then Adjutant-General, to look at all the defences, including the high-angle firing batteries, which at that time were much in favour. The object of the high-angle firing batteries was to prevent a fleet lying in Whitsand or Cawsand Bays and shelling the dockyard and ships in the harbour over the Maker Heights. I do not want to digress on that point, only it occurs to me, as it must occur to everybody who has studied the question of the position of these islands, that no enemy would ever dream of doing that unless we were fighting an enemy which was in the position this country was in during the Crimean war, that is, having a very big Navy and a very small Army. Lieutenant Bellairs has mentioned the expense of new constructions in this and other countries, and I do not presume to follow him entirely there because I have not the figures before me. I did, however, take the trouble to controvert some figures which were given by Lord Brassey to the Chambers of Commerce Defence Committee. The figures of Lord Brassey were, of course, perfectly and strictly accurate, but were entirely misleading, because he gave the figures for this year, and at the same time gave the figures for France and Germany for this year; but he knew perfectly well that we were reducing those figures for this year, and intending to reduce them very largely next year, and the figures of France and Germany—certainly those of Germany—are bound to increase, according to the new Act of 1906. Therefore, those figures were quite unreliable. I saw a statement in the paper to-day, I think, that the United States proposes to increase its Navy Estimates by rather over three millions in the course of next year, and probably a very large proportion of that amount will go in shipbuilding. While on that question, I should like to refer to a pamphlet which has gone the rounds, which looks very much as if it emanated from the Admiralty. I do not know whether it did or not, but at any rate, it expresses what looks very much like the Admiralty view. I dare say some of you have seen it. It is a shilling pamphlet, which is very well got up, and is called "The Truth about the Navy." Lieutenant Bellairs referred to the decrease which has been made in the vote for the shipbuilding for the present year and the decrease in the shipbuilding programme. The greater part of the economy due to this will show its influence next year and the year afterwards. That state of things has been acquiesced in by a great many of the papers, and some endeavour has been made to justify it by naval experts, who somehow or other seem to think that anything which is done by the Admiralty is satisfactory, and that we are not to use our own judgment on the subject at all. But "Excubitor" has a chapter in his pamphlet in which he gives a very good account of the new German Act of 1906; and in referring to 1905, when our programme of four ships a year was laid down by the old Board of Admiralty, he speaks of the German ships as comparatively useless, and, in comparison with British ships of contemporary date, as being strikingly deficient in gun power. That is the position which our Board of Admiralty had to meet so far as Germany is concerned when Lord Cawdor's statement was made in November, 1905. They may have had some idea of what was likely to take place in 1906, because coming events cast their shadows before; but, at the same time, they could scarcely have had prescience enough to know exactly what the German Act of 1906 was going to be, and I do not think they knew at all what it was going to be. What does "Excubitor" say about the German Naval Act of 1906? He says: "The significance of the new naval proposals which have been adopted by the German Reichstag have not yet been realised in England. They are intended to render the German

Navy, until recently a negligible quantity in Europe, a force second only in strength to the British fleet itself. The 1906 amendment of the German Naval Act of 1904 is equivalent to a further addition to the German Navy of eighteen battle-ships, besides six armoured cruisers of maximum size, power and speed, and a number of torpedo craft over and above the provision made in the seventeen years' programme of 1900." If that statement is correct, if there is any truth in it at all, the decision to reduce our shipbuilding policy in July this year is absolutely untenable on strategic grounds. Of course, on economical grounds, if we are to go on the principle that we only vote supplies for the present year, and that the future must take care of itself, and if we do not care as long as we make a little economy this year what extravagance takes place in future years, under those circumstances perhaps they may be justifiable, but not on any common-sense principle. I lay great stress on what the lecturer evidently wishes to bring home to us more than anything else, namely, the want of continuity in the British shipbuilding policy. It does seem to me that a programme is as absolutely necessary as a routine on board a ship. We have a routine on board ship, although we depart from it sometimes; but a ship without a routine is a ship without a system—is a ship which is not conducted on any scientific principles at all; and it appears to me that that is very much the principle on which our shipbuilding policy is conducted. You must also remember that the extravagance of such a policy is very great. We all know what the excuse for the reduction is. What is it? Because neither France nor Germany has laid down a ship in the present year. And why have not they laid a ship down? Because they propose to make very much greater strides in the future; because they intend to expend so much more, because they intend to rival us, and under those circumstances they are obliged to hold their hands for a moment, because they are not ready to build those large ships which we have set them the example of building. If our coat is to be cut so exactly to the cloth of other nations (I do not approve of that policy at all); but if that is so, the loss of the "Montagu" the other day ought to have been immediately made good. In my opinion that ought not to be our principle. We ought to have some continuity of policy; we ought to have something like a programme, and some margin. This question is an old hobby of mine. I recollect that I spoke to Lord Selborne about it once or twice, and he said in reply: "The fact is, we have a programme at the Admiralty, but we are not going to tell everybody what it is." If they have a programme at the Admiralty, it is an extremely elastic one, as the lecturer has shown. You can see that, not only in regard to the battle-ships, but in regard to the torpedo flotilla. There is only one more thing to which I would like to allude, because I have detained you quite long enough already, and that is the question of the tonnage argument, which I think the lecturer has fairly disposed of. It is, of course, perfectly ridiculous to use that argument when we take into consideration such vessels as those of the "Diadem" class, vessels of the "Terrible" class, and those very large vessels which pile up the tonnage, no doubt, but are really only monuments of the mistakes we have made. I do not know what our friends the Japanese think about it, but they do not build ships with unarmoured ends. Captain Klado, in speaking of the loss of the Russian ships, attributed a great deal of it to the fact that they had unarmoured ends. Under those circumstances, as we have a great number of ships with unarmoured ends which have been objected to by naval officers, I think the sooner they are replaced the better. There is only

one more point to which I will refer, and that is the pious opinion expressed by the lecturer, that we shall always have a redundancy of men. I should very much like to know whether the Japanese found that that was the case. Lieutenant Bellairs says, truly enough, that unless the ship goes down very few stokers are lost; but a great many of the Russian and Japanese ships did go down. We know that the Japanese themselves lost two battle-ships besides several other vessels. But not only that, I should like to know how the wear and tear affected the health of the men. You cannot keep men at sea constantly engaged in warfare, and deprive them of the comforts which they obtain when they are not at sea, and keep them in the best of health. I am quite certain that as regards the officers, the losses will be very heavy from the amount of responsibility they will have to bear. I cannot help thinking, also, that it will be the same with the petty officers, if not with the men. I do not wish to detain you any longer; I only wish to say how very glad I am that the lecturer has brought this subject before us. On the question of ship construction and the ships we ought to have under construction, there is no one who has given more attention to the subject, and no one more capable of giving an intelligent opinion upon it than Lieutenant Carlyon Bellairs.

Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B. :—I find it difficult to offer any worthy remarks on the hon. gentleman's lecture, because the paper was only put into my hands as I entered the theatre, and I have not even looked at the appendices. In the paper which Lieutenant Carlyon Bellairs kindly read to the members of this Institution in June, 1904, he expressed a hope that the cost of a battle-ship might rise to £2,000,000, as in that case he ventured to think some of the foreign Powers would not be able to continue in the competition. As regards the actual cost of a first-class battle-ship, it appears as if his wish would soon be gratified, but this great cost does not seem to stop their construction. The Japanese have recently launched one of 18,000 tons, and the German Reichstag, by their Naval Amendment Act of 1906, have authorised the construction of 18 such ships between the present time and 1917. But although I do not feel competent to criticise the paper, I should like to offer a few observations on the standard of naval strength, because certain newspapers and writers seem to be endeavouring to get up a naval scare. Now, whilst giving these gentlemen every credit for sincerity and patriotism, I do not find myself in agreement with them. After studying tables relating to these matters, I maintain that with regard to European nations our two-Power standard is well maintained, and more than maintained. That being the case, I submit that it is a mistake to build ships in advance of our requirements, because such rapid improvements take place that what may be quite up-to-date to-day may be slightly behind the times in the following year; and Sir William White, in one of his recent interesting letters to the *Times*, has pointed out that we can build ships, and carry out all the details of equipment, much more rapidly than other nations. Besides, we have reason to know that although the construction of certain foreign vessels is authorised, there does not seem at present to be any great haste in laying them down. Sir Edmund Fremantle has alluded to a pamphlet, quite recently printed and distributed anonymously, on the question of the comparative strength of Navies, but I beg leave to state that I formed my opinion on this subject before I saw "The Truth about the Navy." That pamphlet, however, has confirmed my convictions, and appears to have been written by someone well up in the

subject. As allusions have been made in some quarters to the present strength of the German fleet and the possibility of a sudden attack on us from the fact that nearly the whole of their naval power is concentrated in the North Sea, let us just consider the position. We will allow that the Germans have two squadrons, each of 8 battle-ships, ready for service. There would be 8 vessels of the "Deutschland" and "Braunschweig" class, of 13,200 tons, with 4 11-inch guns each and smaller armament, and 8 vessels of the "Wettin" and "Kaiser Barbarossa" class, of 11,000 to 12,000 tons, and their 4 9·4-inch guns each and smaller guns. Our present Channel Fleet is, I understand, to consist of 14 battle-ships, the two first of 16,500 tons, eight others of over 16,000 tons, and two more of 15,000 tons, the whole much more heavily armed than the German ships. Lieutenant Carlyon Bellairs objects to this comparison by tonnage, but it is impossible in a few minutes to go into all details of armour and armament. Behind the Channel Fleet we have the Atlantic Fleet of 6 modern, well-gunned battle-ships, and as an immediate reserve we have the Home Fleet, manned with nucleus crews, and the "Dreadnought," with a complete crew, as flag-ship. Our preponderance of cruisers is very considerable also at present, but if the German nation carry out their intention of constructing 18 battle-ships of "Dreadnought" dimensions (and I have not much faith in the coming Peace Conference), then we must go ahead with our building and keep well in advance. The hon. lecturer contemplates a danger ahead in reducing our naval construction in any one year because some Members of Parliament, and especially the Socialist Members, will look upon any reduction as permanent, and will in future object to any necessary expenditure; but I cannot think that a Government like the present, backed up by the largest majority we have ever known, will be deterred from doing their duty to the country by a small body of Members who call themselves Socialists. As for the Labour Members generally, I believe they are far too patriotic and level-headed to allow the risk of their country getting under the heel of any foreign Power. In the construction of new vessels in peace time I should not encourage overtime in order to obtain rapid completion. Doubtless there are men who are glad to earn higher daily wages, but the usual hours are sufficient for their health and well-being; besides which, three men working overtime may prevent a fourth from working at all, which is bad for him, and still worse for his wife and children. In times of emergency men must, of course, be called upon for every effort, when we may, I fell convinced, rely on their co-operation.

Mr. L. Cope Cornford:—I feel great diffidence in speaking after the distinguished officer who has just given us his views on what he calls a naval scare. I am delighted to hear the Admiral say there is no necessity for a naval scare, because on the facts which have been adduced by the lecturer, and other facts to which he referred incidentally, I personally was of an entirely different impression. If you will allow me a few moments I will put a few considerations before you. With regard to the question of shipbuilding, the lecturer has said very clearly all that is necessary, so that I need not touch on that point at all. With regard to the *personnel*, Lieutenant Bellairs assumes that we have quite sufficient *personnel* in time of war; but there are other things to be considered, and among them is the condition of the *personnel* at this moment. I would like to point out to this meeting that 30,000 men and more are kept in barracks ashore, instead of being under training at sea, and that the reduction of the sea-going squadrons by six battle-ships and four cruisers

will place another 8,000 or 10,000 men on half training. Although the Admiralty Memorandum of 24th October states that those men will be afloat and not ashore, it means that they will live on ships in harbour—exactly as the Russians did in their ships at Port Arthur, and exactly as the Russians do in the Baltic Fleet in the summer, while they live ashore in the winter. That is not a reassuring proposition. I should also like to point out, as the lecturer has told you, that eight battle-ships of the "Royal Sovereign" class are stated to have been placed in the special reserve with skeleton crews. We have also been told in the House of Commons that five vessels of the "Admiral" class, and the "Sans Pareil" and other obsolete vesels are to be sold. The "Renown" is now a Royal yacht. Four second-class battle-ships (two "Centurions," two "Trafalgars") are also to be laid up. I will not trouble you with the figures, but if you work out the total reductions, including the eight "Royal Sovereigns," you will find that we are left with a total available number of forty-one battle-ships, although the Dilke Return gives a far higher number. We are told that this scheme is not in operation, but if you look at the Naval and Military column of the *Times*, you will see that the ships are being withdrawn one by one. That, to my mind, is cause for alarm; but we are told that there is no cause for alarm because of the formation of the new Home Fleet, on which Admiral Bowden-Smith says there may be some reason for argument. To my mind there is very great reason for argument. The Admiralty declined to tell us what sea training is afforded by the Home Fleet, how much it is, how many men are to be allowed to each ship, how often the ships are going to sea, and even decline to tell us what the ships are that compose it. There is only one conclusion to be derived from the Memorandum, namely, that the ships are kept in harbour, and that the men are kept on a half, or perhaps a quarter, training. Under the present system of nucleus crews, the men only go to sea ten days a quarter. As far as the reserve is concerned, the reserve proper is kept to reinforce the fighting line, and I do not know that there is very much objection to that; but if we reduce the sea-going squadron in order to swell the reserve, with perhaps a slight increase of sea training, consider what that means. The preamble of the German Navy Act lays down as an absolute axiom that the only possible way of keeping ships efficient is to keep them at sea in full sea training. I have not the honour to belong to the Naval Service, but I have never yet had a conversation with a naval officer who has not said that the only way of maintaining a ship in an efficient condition was to keep the men at sea under training. I should also like to mention, with regard to the *personnel*, that the entries for the Royal Naval Reserve have been entirely stopped, as you will see by reference to the last Naval Estimates. I should also like to call attention to the short service system with regard to the *personnel*, by which men, instead of being enlisted for continuous service of twelve and nine years, are being enlisted for twelve years, only five of which is spent in active service, and the remainder in the reserve. I believe that the naval officers present will agree with me that it takes, on the average, five years to make a man efficient. These men, after five years, are passed out on sixpence a day pension! Sixpence a day pension is no use to him; he must get a job. He is an unskilled labourer ashore, whatever he is at sea. Where does he go? He goes to the United States Navy. In addition to the short service system, there has been introduced lately, under, I am sorry to say, a Unionist Government, a system of inviting continuous service men to break their service at any time they like, and to pass into the Royal Fleet Reserve. What does

that mean? It means that those men also go to the United States Navy in large numbers, where they get from three to four dollars a day. We are training first-class seamen and gunners for the American Navy; that is what it comes to. Why? In order to save pensions, and for no other reason whatever. That is stated in the last Naval Estimates—in order to save the granting of pensions to men who have devoted the best years of their lives to the service of this country. We have also heard that the Coastguard is to be abolished. The statement has not been confirmed—nor has it been denied. That will mean that over 4,000 disciplined men—the finest in the Service—will be, in a few years' time, no longer available as a reserve force. I do not see where the saving is effected. The Coastguard duties must be performed by some body of men. The cost will not appear in the Naval Estimates, but it will appear in the Civil Estimates, and therefore it is called an economy! The last point to which I want to call attention is the fact that the Royal Marines have been reduced by 1,529 men—the Royal Marines, a corps second to none. I would like to remind you also that two years ago a proposal was made to abolish the Royal Marines altogether. I cannot tell you the circumstances under which the proposal was negatived. It was, however, negatived by a high authority. With regard to the question of the lack of cruisers, I hope Admiral Fremantle will give us his views on the subject.

Vice-Admiral Sir CHARLES CAMPBELL, K.C.M.G., C.B., D.S.O.:—I only rise in order to add my testimony to that of the other speakers of the extreme pleasure with which I have listened to this extraordinarily well-written paper, which has been put before us in such a wonderfully clear manner. In the course of his lecture, Lieutenant Bellairs referred to historical retrospect. I do not think he quite knows what is done at Greenwich. In the course at Greenwich they are all taught naval history, which I consider is a most important point. You cannot obtain a glimpse of the future except through the medium of the reflected past. That is a very well-known maxim. It is only by studying history, and being well up in everything connected with the Navy, that you are able to lay down lines upon which you can travel in the future with safety and economy. With regard to the two-Power standard, of which so much has been said, so far as I am concerned, I am a three-Power standard man. Of course, we have to remember the public purse, but where it is possible there is not the slightest doubt that that should be our position. I am one of those who do not consider that twelve ships make a fleet, and I have endeavoured in this Institution and elsewhere to prove that. Besides the actual ships that are required for fighting purposes we must also have colliers, ammunition ships, hospital ships, look-out ships, and all the paraphernalia that goes to make up a fleet. If we went to war to-morrow we should have to take up all these things probably haphazard. I think myself money should be spent long beforehand in practising these ships with the fleet, and, generally speaking, making the fleet mobile, as it would be in an actual fight in time of war. There is only one other point I would like to mention, that is, that I am also one of those who do not think we should depend on the English Channel as our only way of getting into the North Sea. I am of opinion that this little island ought to be cut across from Edinburgh to Glasgow, and that we ought to be able to transfer battle-ships from the North Sea to the Atlantic by means of a canal, or keep them inside in a loch if necessary. I am a very strong advocate of spending the nine to ten million sterling required, I believe, to cut the canal from Edinburgh to Glasgow. I believe it is a

point of strategy which would be worth over a hundred millions to this country, and would be a great saving of naval strength to us. I hope before I get out of it I shall see that done. The other point I wish to raise is rather a debatable one, but I am very strongly in favour of the idea that we should have means of transporting troops to the Continent other than by over-sea; that means, of course, the Calais-Dover Tunnel, which I also hope to see made. I think that would be a fairly strong strategic point. If we could transfer troops to a friendly nation on the Continent by means of such a tunnel, if we had a difference of opinion with some other nation, we should not require such an enormous fleet of transports to carry the troops across the sea. You must remember that taking ships across the sea does not only mean the employment of transports, it means the use of an enormous fleet of convoying ships, which have to be taken from their proper work. I wish to say, in conclusion, how very much interested I have been in this lecture, and to add my thanks to the lecturer for the excellent way in which he has brought the subject before us.

Mr. L. GRAHAM H. HORTON-SMITH, F.S.A. Scot. :—Like everyone else, I have listened with the utmost attention and interest to everything that has fallen from the lips of the speakers up to the present moment, and it is with some diffidence that I rise to place before you the views which I hold upon this subject. I should like, now, in the first place, if I may, to take one particular point in Admiral Bowden-Smith's speech—one which at first glance seemed to be a good point—namely, that we need not build as much at the present moment as we should otherwise build, for the reason that the British nation can build more rapidly than any other. Assuming the reason relied on to be sound in fact (a suggestion the accuracy of which I am not to be taken as admitting), that might be something in the nature of a good argument; but, if I may say so, and I say it with the utmost respect for the Admiral, he has cut from his own argument the sole basis whereon it rests, for at the close of his speech he said that he considered it very undesirable (for reasons which he gave) that we should build rapidly. Now, you cannot have it both ways. Either it is a bad thing to build rapidly or it is not; and if (as would appear to be the Admiral's opinion) it *is* a bad thing to build rapidly, then you must build in advance, and so, by slower building, secure the same effect as if you began later and built more rapidly. And now, coming to the great principle known as the "two-Power standard," we have at the outset of this discussion, as it seems to me (for reasons which I will mention in a moment), the presumable fact, or what I should call a *prima facie* case, that the two-Power standard is being thrown overboard. If we complain, we are asked why—if we are right—does not the Opposition dare to move the adjournment of the House of Commons? Is not this, perhaps, because the late Government is itself not free from blame in regard to its naval administration, and fears the obvious retort which such a motion would invite? I am not one of those who think so highly of what Unionist administrations of the past ten years have done in regard to the Navy. But it is now more material to ask: "What has the present Government said and done, what is it doing, with regard to the Navy?" Before coming into office the present Prime Minister stated: "I accept the doctrine of standard of supremacy that our fleet should equal any two other fleets in the world." What, now, has been the hitherto accepted meaning of the two-Power standard up to the present year?

It means, not a mere equality with the two next strongest Powers, but the capacity to meet *and beat* the two next strongest Powers; and that no doubt is the standard which Sir Henry meant that he accepted. You cannot be certain to beat your enemy unless you have some margin of superiority. Personally I am not prepared to accept the 10 per cent. margin alluded to by other speakers. I agree with Admiral Campbell's view. Why should the British Empire, which exists on and by sea power alone, run the risk of trusting its security to a 10 per cent. margin, especially nowadays, when there is plenty of chance of battle-ships being sunk from all sorts of extraneous causes, as was seen in the recent Russo-Japanese war? The British Empire can afford no risks whatever, and I seriously question whether a 10 per cent. margin of superiority is to-day sufficient. But assume it is. It is yet to be a superiority as against the next two strongest Powers. That has been and is the accepted meaning of the two-Power standard, and that it is which, as I have said, Sir Henry Campbell-Bannerman accepted before he came into office; but now that he is in office he has closed the book of his past statements, and argues that it is preposterous to suggest that France and Germany, for instance, will ever join together. Is it really such a preposterous thought? If Germany were to choose to square with France on the condition of France taking Belgium without Antwerp, and Germany taking Holland plus Antwerp, there would be all the foundation of a good square deal in the part of France and Germany; and if they saw their chance of such square deal, it may well be that for its purposes the French might sink for the moment their grievance as to the Lost Provinces; and you may be sure that if Germany (by way of utilising further in her own interests such achieved community of purpose) saw any chance of getting for herself some of those fair places of the earth which the blood and treasure of our forebears have bought for us, Germany would take the first available opportunity of turning that chance into a certainty. And yet we have the Prime Minister saying that he will not look at the two-Power standard if it means a standard as against France and Germany; and all the time you have the conditions of a French and German coalition existing. What does the expression "standard" mean? If we are not going to keep to our standard of building so as to be able to meet and beat the next two strongest Powers, whichever they may be, what is the use of calling it a "standard" at all? If a thing is stable it may be called a standard; if it is not it is no longer a standard. If the two-Power standard is no longer to have the meaning it has always hitherto borne, a meaning which can be "understanded of the people," a meaning which, clearly understood, enables the country to keep an intelligent eye upon the Admiralty, then not only is it no longer a "standard," but no longer has the country any basis upon which it can intelligently follow and intelligently (if need be) criticise the actions of those who from time to time may be responsible for the Navy. If we are not to discuss the position as against the combination of France and Germany, it would almost appear unreasonable and unnecessary at the present moment to discuss the question at all, except in so far as there may be suggested a possibility of a war between the United States and Germany in union against ourselves, which I confess I do not myself anticipate as very likely, though of course it cannot and must not be left out of consideration. Taking, then, the Premier's own statement, to which I have just referred, you have, as it seems to me, a good *prima facie* case for suspecting that the Government

are, in fact, throwing overboard the "two-Power standard" in its hitherto accepted sense. But there is more than what I have already mentioned. The Premier was asked in the House on the 12th of last November whether the two-Power standard in its hitherto accepted sense was or was not the policy of his Government, and he declined to answer that very simple yet all-important question. Admiral Bowden-Smith has told us that in his opinion we are all right at the present moment; I confess I think we are not far from being all wrong. The point, however, is, not whether we are safe or unsafe at the present moment, but, whether, and upon the adoption of what policy, we shall be safe in the years to come. Coming now to facts as apart from statements: Do not let it be forgotten that when the Cawdor Memorandum was issued last year, it was no ordinary Memorandum; the Unionist Government were putting their heads together to see what was the absolute *minimum* that they could safely suggest, and as the result of their deliberations it was decided that it was essential that we should lay down *as a minimum*, four armoured vessels in 1906-7, and four in 1907-8 (eight in all), each to be built within two years; yet in May of 1906, with a new Government in power, when nothing had in the interval taken place on the Continent of Europe to make any variation necessary, the Admiralty, through the First Lord, come forward and say that the country, instead of needing as a minimum four and four (as they had said but a few months earlier) could do with only three and two; that is to say, instead of eight, only five! And this in face of the fact that both France and Germany have during the interval brought forward increased programmes, and the "Montagu" has been lost. I will only add one word with respect to repairs. Is it not really alarming to be told and (if it be the fact) to realise that 75 per cent.—some say 95 per cent.—of the repairs of the ships of His Majesty's Navy are left undone to such an extent that large numbers are not capable of doing the duty they ought to do? Take a single instance (I have not time for more), the "Glory," which, for the reason indicated, could recently steam but 12 knots instead of her normal 18! I should like, however, ere I sit down, to refer to one other matter: the question of cruisers, to which the two-Power standard has, of course, no application. This question is one which Admiral Fremantle has had under his continuous consideration since 1902, and it is a matter to which we must give yet more and more attention. As late as June of last year he stated in the public Press that for the purpose of commerce protection alone, to ensure our food and raw material from the hands of the enemy, we require at the present moment (beyond what we, in fact, possess) "at least 50 fast protected cruisers of not less than 24 knots speed" to be "built without delay." That is the result the Admiral has arrived at after many years of thought. It has been suggested that the result of the late manœuvres has shown it to be an impossibility for the British Empire to protect its own commerce. If that is so, it at least supplies a reason for Mr. Robertson's statement, that it is not in the public interest to give any information relative to the results of those manœuvres! Ministers of both Parties, when they do not wish to give an answer to a naval question, say either that the question asked is immaterial, or that it is not in the public interest to give an answer! But we are entitled to know—and we *must* know—whether it is intended in fact that we shall protect our commerce in war. If we intend to do so, then it follows, that if Admiral Fremantle is right, we must proceed at once to build for the purpose, as with our present number of cruisers we should,

ex hypothesi, be unable to afford the necessary protection. Remember that if our commerce (which includes our food) is insufficiently protected, then, when the day of war is on us, up will go the cost of freight and insurance to such an extent, to say nothing of "corners," that the cost of raw materials for our manufactures will be enormously enhanced, while food itself will go to famine prices. There will be both shortage, and simultaneously, enhanced prices. There will be great distress. Manufacturers will have to shut down their works; wage-earners in consequence unable to earn any wages at the very moment when food will be rising rapidly in price; and there will be grave danger of our being starved into submission by the outcry of the poor. I do not think I am putting the case too high. In 1812, when we were fighting two Powers (France and America) at the same time, although we were at that date almost entirely self-supporting, and although our population then was less than half what it is to-day, the quartern loaf went up in price to 1s. 8d., and bread riots took place in many of our large towns. Bread riots are next door to submission, for no Government can keep in power and carry on a war if the whole country is in a ferment of discontent, with riots from starvation the rule on every hand. Yes, if the Admiralty means to protect our commerce in the event of war, then it follows that, if Admiral Fremantle is right, the means for that sufficient protection are at present non-existent; while, if he is to be regarded as wrong, it would almost seem to follow that he is wrong only because the Admiralty has decided that we are *not* to be prepared to protect our commerce in the day of war. If that be so, indeed, then *Good-bye to the British Empire!*

Mr. Edward Beauchamp, M.P.:—We have listened to a very able and a very instructive paper read by my friend, Lieutenant Bellairs; but as we have only heard it read and have not seen it in print, it is very difficult for us really to discuss all the questions that have been raised. I rise to ask whether this discussion might not be adjourned, so that we might have the opportunity of carefully considering everything which has been put before us, and then we should be in a better position, I think, to arrive at some conclusion. If I say a few words now I hope I shall not be precluded from making some further remarks on another occasion. We have had both parties condemned this afternoon by the last speaker; it does not matter whether the Government was Conservative or Liberal I should like to say a few words rather to justify the position of the Liberal party in the House of Commons at the present moment. I am perfectly certain that the Liberal party as a whole is most anxious to maintain our naval supremacy, and I think that we owe a debt of gratitude to the lecturer for this paper, because what the House of Commons requires is to be instructed on this question, because we are not all technical people, and then they will be able to form their own conclusions as to what is necessary in order to maintain that supremacy. Admiral Sir Nathaniel Bowden-Smith spoke with regard to the question of overtime. I think we are all agreed that, generally speaking, in all work overtime is a mistake, but I do not think it was a mistake with regard to the "Dreadnought." The "Dreadnought" was a new ship of a fresh design, and we depended on the result that that vessel might show whether we were to build more vessels of that type. It was necessary, therefore, for us to go on building, and, as I think, it was a wise thing to push forward the construction of that ship and hear the results in every possible way before we committed ourselves to building more of that class of vessel. Therefore I think with regard to overtime in that case it was fully justified

I was glad to hear Admiral Bowden-Smith say he thought we had quite a sufficient number of battle-ships at the present time. The Admiralty Memorandum of 1905, under the former Government, did lay it down that we were to have four armoured ships built every year, but we are laying down now these very large ships, and we want to know whether other nations are going to follow us in that direction.

The CHAIRMAN (Admiral Sir R. H. Harris) :—With regard to the suggestion you have made, Mr. Beauchamp, I think it would be desirable, as there are four more gentlemen who wish to speak, if we postpone the discussion till three o'clock to-morrow. That would give a better opportunity for summing up the question, and time to think over the valuable points which Lieutenant Bellairs has brought before us. So I will ask you to finish your remarks now, and we will adjourn to to-morrow at three o'clock.

Lieutenant CARLYON BELLAIRS :—I do not rise for the purpose of replying to the discussion, but I wish to say, with regard to the point which has been made that my paper was not in your hands before the meeting took place to-day, that you are in precisely the same position as the Members of the House of Commons when the Admiralty makes a great change in policy. On the 27th July we had this great change in naval policy sprung upon us in a speech at a week-end and at the back-end of the session, so that now you can better appreciate how we are circumstanced for the discussion of great changes in naval policy when they are brought forward in the House of Commons. No notice whatever is given.

The discussion was then adjourned, and resumed on Friday, 6th December. Admiral Sir R. H. Harris, K.C.B., K.C.M.G., in the Chair.

Commander C. CRUTCHLEY, R.N.R. :—I must apologise for the possession of a voice like a crow this afternoon, but I can assure you I have not come here to croak. There are only a few remarks I wish to make. I should like, in the first place, to emphasise my pleasure, as an old subscriber to this Institution, at taking part once more in a naval discussion in this theatre. They have been too conspicuous by their absence for the past few years, but I hope the interest this paper has excited may have the effect of bringing together some more of those interested in the Navy to discuss matters and to give the public some insight into what is being done. I think the discussion yesterday afternoon was particularly useful, because it showed that there is a rising school of young men who are beginning to take an interest in the Navy, and an intelligent interest. That is a thing that might very well be encouraged. There appears to be an idea that it is possible to run the British Navy on cheap lines. I do not think that a more fallacious doctrine could possibly be enunciated. The Navy is not a cheap instrument. In the hands of the British Empire it has to be capable of fulfilling its duties, and it must be adequate for the work it has to perform. There was a time when the British flag flew over every sea, when we were represented in all quarters of the world; but I fear that in the last, shall I call it, mad craze for economy

in connection with the Navy our flag has been withdrawn from many places. There are plenty of people in this theatre who have experienced the feeling it gave us when we went into any harbour and saw the white ensign flying on even the smallest gun-boat that ever flew the British flag. That was a national asset. Under the new redistribution that national asset seems in a fair way to disappear. There is another way, however, of looking at the matter. It is needless that I should dot the i's and cross the t's when I say it is far easier to withdraw ships from a station than it is to put them back again. Our friends to-day may possibly be our foes within a measurable distance of time. I do not particularise either the Eastern side of the world or the Western side; but the fact is, that on both sides we have withdrawn garrisons and fleets which it might be difficult to replace without the danger of complications. I feel confident it is unnecessary I should particularise what is at the back of my head in making these remarks, but I would most earnestly put forward the statement that the withdrawal of ships and fleets is an easy matter, and the replacement of them an entirely different thing. To come now to the paper. In the opening part of it I find these remarks: "The people lack an historic sense, and no attempt is made, as is done in Germany, to cultivate it in the schools of the country." I must, with every deference to the lecturer, entirely differ from that, and must point out that the Navy League for the last ten or twelve years has been working in schools, and if I might ask for these papers to be passed up to the Chairman, I think they will show, at all events, that considerable progress has been made. The list of the examinations for prizes at the end of that collection of leaflets will show considerable progress in the principal educational establishments in the country. To turn to the Appendix of the paper under discussion, which even now, I regret to say, I have not had time to study properly, there is there a collection of valuable detail, which would, however, puzzle anyone except those who have given the subject the very greatest consideration. In fact, if the ordinary reader tries to analyse ships, their dates of launching, their dates of completion, he gets into a most hopeless complication, and I would most earnestly ask that when this question is being considered, the very plainest issues should be put forward before the people. In this particular relationship I should like to say—and I feel sure my remarks will be endorsed by nearly everyone here—that we may assume at the present time the strength of the British Navy in its *matériel* is perhaps equal—I might say fully equal—to the two-Power standard; and if we were to say, further, that as it is at the full Power standard now it must be maintained at the full Power standard, we should have something the people would really understand. Still further to endeavour to clear up that point, I would say that we have one "Dreadnought" now, and the "Dreadnought" is presumably the ship of the future. It is then absolutely essential that when the Navy Estimates are presented, they should put before Parliament the "Dreadnoughts" laid down, or the equivalent ships to the "Dreadnought" being laid down, by foreign countries, and then that our shipbuilding programme should be equal to those, with that fair margin of reserve which has been held by both parties to be indispensable for the safety of this country. Yesterday afternoon Admiral Fremantle, whom it is needless for me to say carries the respect and admiration of us all, spoke on the subject of cruisers. So far as I can see we are building no cruisers now, except the three monster ones which are called indifferently either cruisers or "Dreadnoughts." I should like to enter a plea for consideration,

whether the commerce of this country does not warrant the laying down of cruisers, either armoured or protected, that can fetch and carry, vessels to do the housemaid work, if I may so phrase it, under the condition of war. In war we should want numbers of them, but I fear at the present time their supply is wholly inadequate.

Mr. Edward Beauchamp, M.P.:—I think that some of the observations which I propose to make have already been dealt with by the last speaker. As far as we are concerned at present, I think there is no doubt that in battle-ships alone we are fully up to the two-Power standard, and that there may be satisfactory reasons alleged why we should for the moment mark time. That is merely looking at it from the point of view of the present moment, but I think we have to look very much further than that; we have also to look to what the other Powers propose to do. We have at the present moment the "Dreadnought," which is supposed to be, and I hope it is, the finest battle-ship in the world, and we are laying down three more of those vessels this year and two at least next year, and perhaps a third one, dependent, of course, on the result of the Hague Conference. Then, when these ships are built, we shall be ahead of all the other nations—certainly of any one nation, and I think of any two nations—we shall be ahead of them in having the finest battle-ship fleet in the world. And besides that we have those vessels which I ventured in the House of Commons to criticise, the large armoured cruisers, which are said to be equal to battle-ships. I think they must be in some way, at any rate, inferior to the "Dreadnought," but I think they are far superior to anything which we require in the way of cruisers. I do not believe that you can successfully handle something which has a double object; you ought to have a battle-ship or a cruiser. But beyond that, looking ahead, we have to consider whether we shall not in the near future have to build a considerable further number of battle-ships, and whether it is not more efficient and really more economical to have a regular programme for the building of battle-ships than to build three one year and seven in another year. We heard yesterday that, in consequence of our present system or new system of recruits for the Navy, after a man had become efficient he was passed out of the Service and found occupation in another country. I think that also holds good with the artificers and people who work upon the building of ships. They must have regular employment, and if you have to put a number of men on at a particular time for the building of a certain number of battle-ships, and then reduce that number afterwards, you must necessarily throw a large number of men out of employment, and those men have to find employment at other places, and I think there are other countries—one country in particular—which will be very glad to have our first-class workers. With regard to the cruisers, I was very much surprised yesterday to hear from Sir Nathaniel Bowden-Smith that he thought we have a sufficient numbers of cruisers. A large number of cruisers we have will in a very short time, I believe, become perfectly obsolete and be put upon the scrap-heap, and that will leave us with a very great shortage in cruisers. I remember when Sir Geoffrey Hornby read his paper before the London Chamber of Commerce in the year 1888, he distinctly laid stress on the number of cruisers which it was necessary for this country to have, and he said: "You may have to watch a particular place, and it is necessary to have three cruisers on the spot in order to do it. If you have three cruisers on the spot it will be necessary to have five cruisers in order to carry out that work efficiently." That struck me

very much at the time, and I sincerely hope that in the near future the consideration of the commerce we have to protect and the attention that is being given to the problem by the Admiralty at the present moment will result in the building of more cruisers. It is always very difficult, I think, to obtain any very great amount of information in answer to questions that may be asked the representatives of the Admiralty in the House of Commons. I saw it stated a little time ago in the *Standard* that all the ships of the "Royal Sovereign" class were going to be put into special reserve, and that they would have simply skeleton crews. I asked the question whether it was so, and the reply which I received was somewhat cryptic. The answer was: "I am not in a position at the present time to give any information, as the scheme for the re-arrangement of the ships in commission in reserve is still in process of development." I do not know what that development may be, but I saw two days afterwards, and it was said to be an official statement, that two vessels, at any rate, of that class had been placed in the special reserve with skeleton crews. Now, I think that if the Admiralty have the intention—and I rather fancy that they have—not to spend any money or much money on the maintenance and upkeep of these ships, it will be fair to us and fairer to the country to let us know exactly what they do mean. Of course, we have their own statement of the Admiralty policy on the Navy for 1905. What does it really mean to put these ships into commission with a skeleton crew? It means practically, according to their own statement, that you are getting rid of these ships as efficient units. They were speaking of the old system, where a ship was paid off and the crew dispersed and another crew turned over to it. That was suddenly to extinguish certain units of organised efficiency. A ship manned by officers and men who neither knew the ship nor knew each other, it was said, could not be expected to reach a standard of fighting efficiency for at least six months. I gather from that, that ships placed in commission in special reserve, with merely a skeleton crew, would, on the Admiralty's own showing, mean that those ships would not be ships of fighting efficiency for at least six months. I think that perhaps less time than that would give us ships of fighting efficiency. But if they are going to place these ships in the special reserve in this way, which has been called the vestibule of the scrap heap, and those ships are going on to the scrap heap in a few years' time, I think they ought to let us know, and we must continually insist that these ships that are going out of employment should be replaced by a sufficient number of newer types of vessels.

Sir WILLIAM WHITE, K.C.B. (late Chief Constructor of the Navy):—I feel some diffidence in joining in this discussion, not that it is a subject in which I am not interested, but because there is a danger of anything I may say being attributed to partiality on my part in favour of ships which I have designed. But I do not propose to discuss designs of ships, and propose to join in this discussion because it is a matter for congratulation that a naval debate should again take place in this theatre. Of late there has been a tendency to suppress discussion, to state one set of opinions strongly, and it is time another course was taken. Lieutenant Bellairs' paper traverses so much ground that it is absolutely impossible—neither would it be desirable—for me to take up seriatim the various points. He has spared no pains to ascertain the facts; he has summarised those facts, formed his conclusions, and stated them definitely. We know what he means, and we are bound to respect

his opinions, even if we dissent from them. I will first refer to matters which concern me as a naval architect, not as the designer of particular ships. First, there is the question of displacement tonnage. Everybody here knows that the displacement tonnage of a ship means her total weight when floating at a fixed water-line, which may not be the deepest load water-line, and for most war-ships is a long way from the deepest load water-line. For any assigned draught of water it is possible to ascertain the weight of a ship when you know her form. The lecturer properly says that merely to add up displacement tonnages of ships on the effective lists of different fleets and to take the respective totals as measures of relative fighting force is incorrect; in fact it is absurd. But there is an important sense in which displacement tonnage is a fair and useful measure. At any given date, when invention in relation to war-like material and structural arrangements has reached a certain point, one may be sure that if one naval architect is able to use 14,000 tons as his capital, and another naval architect, equally well informed and equally capable, is only allowed 12,000 tons, the man who has 14,000 tons must have the advantage. The distribution which may be made of the greater tonnage may not be universally approved, but it cannot be denied that if one man is working with 14,000 tons and another with 12,000 tons at a given date, he ought to produce a better fighting machine. Recognising that limitation, in comparing ships designed at or about the same date the displacement tonnage method is useful. For example: Going back to the Naval Defence period of 1888-9, I was responsible for advancing the displacement of battle-ships to 14,000 tons at a time when other Navies kept much below that figure; and undoubtedly we got good out of the larger displacement. Advance in displacement does not always mean a corresponding or proportionate advance in cost. As a matter of fact, we built the "Royal Sovereigns" for less money than the "Inflexible" cost, although she was of less displacement, and for not much more money than many smaller foreign ships were costing. Therefore, you may take it as a principle that ships of a given date which are of larger displacement ought to be more powerful fighting machines. In that respect, since Great Britain led the world with large displacements, there ought to be, and I believe there are, corresponding advantages which I need not particularise. On the other hand, if a ship of any selected date is compared with a ship designed long after, when inventions in gunnery, in armour, in propelling machinery have gone further, it may happen that the ship of earlier date may be more powerful than the ship of later design, because of her smaller displacement. We have generally been building larger ships than were built abroad contemporaneously, and this fact is important. We have had the necessity for greater sea-keeping power, greater coal endurance, and have produced real sea-going ships, not merely floating forts, such as have been designed and built for coast defence or for employment near the coasts of other countries. Although it is true that the design of later date has many advantages, it may still happen—in many cases it has happened—that ships of earlier date, because of their greater size, are more powerful fighting machines than later ships of smaller size. One cannot lay down any general rule, and exact comparisons are difficult. I do not like to refer pointedly to foreign vessels, but I have in mind vessels of about 11,000 tons belonging to a foreign Navy, built some years after the "Royal Sovereign" class. In those ships defence was deliberately minimised and powers of offence were increased. The hull armour consisted of a narrow belt not extending over the whole length, and this belt only rose about 2 feet above water

when the ships were fully laden. Above the belt there was simply thin steel plating. These foreign ships had the advantage of modern armour and of other improvements, in propelling machinery and guns, introduced in the interval between their design and that of the "Royal Sovereign" class. Yet I say unhesitatingly that the "Royal Sovereign" class were still the more powerful fighting machines. No general law or simple rule can be laid down for these comparisons. One must not trust tabulated statements of maximum thicknesses of armour. There are ships in which the reputed thickness of armour can be found only on a few plates on the sides; such things are not unknown even in modern times. We must have full knowledge in order to make true comparisons. We know the faults of our own ships, and there is a tendency frequently to exaggerate these faults. That may be the safe course to take in estimates of relative fighting power, but it may be carried too far; and when talking with foreign friends, I find that they think it has been carried too far, and they say it is clever on the part of English writers to depreciate what we possess in order that the public may be led to believe that we are not so well off as we really are. Turning next to unarmoured ends, one finds a discussion which goes back for more than 30 years, and one gets a little weary of it. It reappears periodically, especially when the Royal Navy is relatively strong. Lieutenant Bellairs says we are all right at present as regards naval force, and, being well off, the advocates of large building programmes recur to the subject of unarmoured ends as a source of weakness. Admiral Fremantle yesterday said that naval officers had always opposed unarmoured ends; but by reference to Parliamentary Papers for 1889 one can see that it was a Naval Committee which was associated with the Board of Admiralty in considering alternative designs who decided unanimously that the ends of the "Royal Sovereign" should be unarmoured. Alternative designs which I had prepared had the bows armoured, but these were deliberately set aside as being, in the opinion of the naval officers consulted, not so good as the design with unarmoured ends. The weight of naval opinion at that time led to the disposition of the armour adopted in the "Royal Sovereign" class. For every ship that has been designed subsequently the same question has arisen; various alternative designs have been put before the Board, and the arrangement of armour which has been adopted in every instance was selected and approved by the Board. Armaments have changed, Q.F. guns have come into use, other conditions have been modified, but writers and speakers who concentrate attention on the absence of armour from a certain portion of the ends of ships, are apt to overlook considerations more vital to the safety, buoyancy, and stability of ships. The small vertical extension of armour to the ships in foreign fleets is not regarded by them, although it involves serious dangers. In many first-class foreign ships the armour belts rise only 18 to 24 inches above water when the ships are deep laden. Above the armour belt there is nothing between the interior of the ships and the outside water except ½ inch of steel; in many cases there is no sub-division of that internal space. Frequently heavy guns are placed in armoured barbettes, perhaps 20 feet to 30 feet above the water, and these barbettes are only connected with the armoured hull by armoured tubes. I ask whether or not such a limitation of the vertical extension of the armour is a less danger than the limitation of its longitudinal extent to, say, two-thirds of the length of the ship? The point for consideration is: Which is, on the whole, the better disposition of armour, within fixed limits of weight. My views on the armour question are not at present under discussion; we are talking about principles. My views

have been expressed, and anyone who cares to read them can do so and agree or disagree. But the problem in every case in this : Given a certain available weight of armour, in what way will it be best distributed for a particular ship? Each case has to be considered on its merits. I will refer to one illustrative example in the French Navy, which I can do without offence, because it has been publicly discussed in France. Vessels of the "Montcalm" class are fine, upstanding cruisers, designed by my friend, M. Bertin; but in some of the first vessels of the class, wherein the hull armour rises about 8 or 9 feet above water, the guns are placed a deck higher, and there is an unarmoured space below the gun stations open to serious attack by shell fire from Q.F. guns. This feature was severely criticised, and has been altered in later vessels. This case illustrates the necessity for taking all circumstances into account in considering the relative protection of war-ships. We do not usually know, when attempting comparisons, as much about foreign ships as we know about British ships. This is especially true of late. We live in an age of secrecy. It is considered that the British public should not know what armour is carried by new ships building for the Royal Navy. I do not in the least agree with such secrecy, and I never favoured it in my long official career, and am confident that those who wish to know the particulars for British war-ships can and do know at early dates after building begins. Let us live in the open as much as we can. There are many things we should not disclose, but to conceal the general dimensions of a ship or to treat her armour and armament as secrets after construction has begun is ridiculous. I should like to refer to remarks made in the paper with regard to the battle of Tsushima. A good deal is made of what happened to ships with unarmoured ends; but did they fare worse than the "Suvaroff" or the "Emperor Alexander III.," which had complete armour belts? The Russian accounts show that although many ships had complete belts, that armour was of no use. The belts were narrow near the bow and stern; but even if the armour had been carried 7 or 8 feet above water, when ships are driven head to sea and the light side plating is perforated, large quantities of water will enter. Having made a careful study of the whole of the *data*, so far as I can reach it, and consulted Russian, Japanese, French, Italian, and other authorities, I am of opinion that the sinking of these great ships at Tsushima was due principally to injuries in their thin side plating and protective decks. Water came in above the armour, the decks, having large areas, presented magnificent targets, and through injured portions of the decks the water passed below; the ships plunged head foremost, and were overset. To speak of a mere continuation of the armour to the bow of a ship as being in itself an immense increase of safety, and to pay no regard to its very small vertical extension above and below water, is to beg the whole question, as anyone familiar with the conditions of stability in ships will admit.

A MEMBER :—May I ask you to express an opinion on the excuse given for placing the "Royal Sovereign" class, whose ends are unarmoured, on the non-effective list?

Sir WILLIAM WHITE :—These ships are my children, and I am, perhaps, a partial parent. A time comes, no doubt, when every fighting machine must be put aside; but I am far from believing that time has come with the "Royal Sovereign" class. Passing on to the question of progress in invention as affecting war-ships, I take exception to an opinion expressed

by Lieutenant Bellairs on page 4 of the paper. He speaks about turbines as if they involve increased consumption of coal. It is true that at the outset turbine engines of great power when run at low speeds were expensive of coal. It is also true, as anyone will see who will study more recent trials with auxiliary turbines, that they are not now relatively expensive of coal. The steam turbine is an invention which must sustain development as time goes on, but already a point has been reached when it compares favourably with reciprocating engines as regards consumption of coal, even at cruising speeds. With regard to water-tube boilers and their more frequent renewals, I am inclined to doubt Lieutenant Bellairs' opinion; much depends on the type of boiler and the treatment it receives. If the type is right and the treatment is reasonable, there is no reason why water-tube boilers should be costly in maintenance. Inventions, to be of real service, must be treated wisely. As an invention progresses, management must become more skilled. That has been so in machinery rooms, and it must be so in boiler rooms; there is no reason why it should not be so. Risks necessarily run are not on one side only in contests between nations. Take for example water-tube boilers. As long ago as 1892, the French, who were by no means given to taking unreasonable risks, had come to the conclusion that the balance of advantage lay on the side of water-tube boilers, and they adopted them. That meant a gain of a knot in speed with battle-ships as compared with ships having cylindrical boilers. On my visits to France I found out the condition of things; it seemed to me their action necessitated corresponding action here. We might not adopt French methods, but when improved steam generators were discovered and adopted abroad, clearly the problem required to be dealt with here. And we had to deal with it on a large scale. We had to learn our lesson as we went along. There were troubles, which happily now have been largely overcome, and which I believe will eventually entirely disappear. The main contention of Lieutenant Bellairs relates to our shipbuilding policy. Elsewhere I have dealt with the comparative rates of building in England and abroad. I will simply add that finance really rules rates of production. To build fast you must spend a lot of money. I am not referring now to phenomenal performances of which we have heard recently; I am referring to our normal procedure. It is true generally that plenty of money must be spent, and that there must be good organisation, skilled men, materials to hand, and everything arranged if you wish to build war-ships rapidly. The cost per unit of war-ships is growing. It is quite clear, therefore, that financial considerations will become even more important in future. With a given expenditure fewer ships can be built rapidly if they individually cost more; and to maintain both rapidity and numbers, the annual expenditure must be correspondingly increased. That is a game we can play, and have played. We have been at financial war in naval affairs for the last 20 years; we have won because we have been bold and courageous; we have never failed to match what was likely to come against us; we should not fail in future, and are not failing at present. Let us take the pronounced intentions of France and Germany as disclosed in their Naval Estimates. What do we find? Lieutenant Bellairs has said that at the present moment we are all right. It is a comfort that he should have that feeling. He wants to keep us right; we all want to keep right. We can believe that of the present much-abused Government. I do not believe any responsible British Government would do anything else. I entirely dissent from the doctrine that only the latest type of ship counts in naval affairs.

The CHAIRMAN :—That is not set forth in the paper.

Sir WILLIAM WHITE :—I did not say it was; but the view is often put forward. Taking it on that basis, and admitting that we are at the present moment in a good position as regards naval force, while we have a large shipbuilding programme, it is well to note carefully the intentions of France and Germany, disclosed in their Naval Estimates. The French Naval Estimates, including the detailed finance for 1907, have been in my hands for more than a month, and I have gone through the whole of the figures thoroughly. The French intend to finish two battle-ships by the end of the year 1910. There will be a lot of money to pay after that, but the ships will be ready, although the final instalments are to be paid in 1911. Four other battle-ships are to be ordered this year, but are not to be laid down; they will be finished, according to the latest statements, in the middle of 1911. In the United States there may be two large battle-ships completed by the end of 1910. In Germany the three armoured ships proposed for 1906 are not yet begun. German authorities have found, as everyone does, that when a new type is to be built it is worth while taking trouble and thinking out arrangements before starting work. Supposing they start immediately, according to their programme they will take three years to build the ships. It is not a question whether they could build more quickly, but what they propose to do. What shall we have ready at the end of 1909? The "Dreadnought" is now approaching completion, and we are told she is equal to any four battle-ships.

A MEMBER :—What is your opinion on that point, if I may ask it?

Sir WILLIAM WHITE :—I would rather not answer! I did not come here to give opinions on types of ships. We shall have also the "Lord Nelson" and the "Agamemnon," ships which compare well with the new type of battle-ships to be built in France as regards armour and armament. Then we have three "Invincibles," which a previous speaker said were "quick-change" ships, appearing sometimes as cruisers and sometimes as battle-ships. At all events, in armament, so far as the published descriptions go, the writers of which seem to be well informed, they are armed as battle-ships, although no official statement has been yet made respecting their armaments. Lastly, we shall have three new "Dreadnoughts," two of which are already in hand and one about to be laid down. I think Lieutenant Bellairs will agree with me that these will be ready.

Lieutenant BELLAIRS :—Yes.

Sir WILLIAM WHITE :—So that we shall have nine ships by the end of 1909; Germany might have three, including one large cruiser. These newest ships, we are told by those who profess to speak with authority, are the ships which will determine our fate. If we can build, as I maintain we can, more quickly and in larger numbers, and if our position in this new and much advertised type of ship at the end of 1909, will be as I have stated it, it is quite clear that we can sleep in peace for another year.

Vice-Admiral W. H. HENDERSON :—I think if you will look at Appendix G you will perceive the exceeding difficulty of this country, under any standard that may be laid down, sticking to a programme. It is not only that the political strategical situation alters, but the nations concerned, with the exception of Germany, vary their shipbuilding programme from

year to year. Programmes are of recent date, and really the only nation that has strictly provided a consistent one is Germany. I think, if I remember correctly, that both in the House of Commons and the Press, after the 1888 and 1894 programmes, strong objections were urged to programmes. Those objections were put forward at the time, and, as Sir William White says, "finance governs the question." The House of Commons is, I feel, reluctant to grant money in advance; it does not like binding itself to the future; it prefers always to have the Votes taken year by year. In every single instance, whether it is a small detail or a large detail, it carries out that policy as closely as it can. I would observe that in any business, whether it is a private concern or whether it is a national concern, you must trust somebody; you cannot get on without it. In the present case the watch-dog we have to trust is the Admiralty. The Admiralty in the past have shown that they are worthy of the nation's confidence, and I do not care whether it is this Admiralty or any future Admiralty, or whether the Government for the time being is a Conservative Government or a Liberal Government or a Labour Government; I am perfectly certain that the Admiralty may be trusted to sing out if there is the slightest danger of the nation getting below par in its naval strength. I do not think we need be afraid. They are the people whose business it is. They have the latest and most accurate information; they have a heavy responsibility. When Lord Tweedmouth publicly says that he will not allow the Navy to get below par, I think the nation should be satisfied. I do not wish to depreciate in any sense the value of the paper that Lieutenant Bellairs has given us; I consider it is a most valuable and interesting paper, alike to the public and to everybody concerned, and it must be a great advantage, for papers and discussions of this sort do a great deal of good if it is only in keeping our watch-dog (the Admiralty) from having forty winks. There was one point mentioned yesterday in the discussion that I should like to say a few words about, namely, the question of overtime. Years ago the dockyards were very expensive in the matter of overtime, and I quite agree with what was said, that overtime is not worth the money that is expended upon it, and that for three reasons: First of all, it keeps other men out of employment; secondly, it unduly increases the hours of work; and thirdly, it is true to say that I do not suppose in most cases you get half the value of the money spent on it. That is a general conclusion that all will agree with, I think; but to show you that efforts have been made to reduce overtime, I can give you figures for Devonport Dockyard. The overtime spent in 1902-3 was £28,391. I set my face against it, and in 1903-4 it was £18,035; in 1904-5 it was £13,216; and in 1905-6 it was down to £8,387. I would make one exception to the question of overtime as it has been in use up to date, namely, that when you want to build a ship very rapidly it is absolutely essential to use it under the conditions which have pre-existed; but personally I am strongly in favour of shifts instead of overtime where pressure is necessary. With the electric light in the dockyards, and further improvements, I have no doubt that, although naval architects have opposed the shift system of ship construction, the facilities will be so great that they will be able to undertake it. The Admiralty, I may say, within the last year or two have very much set their faces against overtime, and I know that recently at Devonport there were constant reminders to us that no overtime was to be utilised.

Fleet-Surgeon W. G. Holme, R.N.:—It will be perfectly obvious to every executive officer that as I am but a seafaring physician I cannot know

much about naval strength. Probably that is true, but there is one very important element in naval strength which I consider Lieutenant Bellairs has entirely left out of consideration; he has not said a word about the *personnel*. He has told us that, taking foreign Navies to be represented by a force of 200, what we want is a force of 220 in *matériel*; but you cannot spend your money on everything, and the Admiralty has been lately spending its money on improving, for example, my pay and other people's pay, so that there should be better physicians coming into the fleet. They have improved the pay of the bluejackets and stokers, and increased their opportunities for advancement, and consequently they have raised a much higher spirit of zeal and emulation in the fleet. Obviously if you are a bluejacket and can rise to be a warrant officer, and if you are a warrant officer you find you have nothing more to gain, then you are dead; but if you are going to be promoted to lieutenant you go on working with great zeal. Consequently I have no hesitation whatever in saying that the efficiency of the *personnel* of the fleet is very much higher now than it was formerly. I joined the Navy 20 years ago, and went to sea with the Duke of Edinburgh in the flag-ship in the Mediterranean. I am now in the flag-ship in the Channel, and I have no hesitation in saying that there is twice as much work done now as was done in the days when I joined the Navy. In those days there was nothing to fight against; now all the foreign fleets are pretty strong. What with that and the opportunities the Admiralty give for advancement, there is a great deal more practical work being done in the fleet now than there was before. To parody the poet:—

> "Stone walls do not a prison make,
> Nor iron beams a ship."

It is the spirit of the *personnel* infusing the ship that makes the ship of value, and that is vastly higher now. There is very much more energy in the ships now than there was formerly. Therefore, I say Lieutenant Bellairs, in talking about 220 (his 10 per cent. extra of *matériel*), was neglecting the possibility that the Admiralty get very much more than this equivalent of naval force in other ways. You cannot spend your money on everything, and it seems to me much better to spend it on men, to a certain extent, than to put it into another battle-ship. You have to keep battle-ships at sea, of course, otherwise the training which makes a naval officer what he is would not be obtained. I went up the Baltic last year with the Channel Fleet. My opinion, of course, is not of very great value, but there are a lot of people here who do not know so much about ships as I do. We saw the German fleet, and it was perfectly obvious that the Channel Fleet could eat it up. I do not suppose the Germans can move against us until they have rebuilt their fleet, and that will take another six years, and there is plenty of time to think about building "Dreadnoughts." It is not a good thing to build "Dreadnoughts" until we know the defects in the present design. Another little thing I should like to say is this. Lieutenant Bellairs said it would have been very pleasant for Admiral Wilson to have had these "Dreadnoughts" at the manœuvres. It would have been. None of us can ever be too rich, but if we had managed to have had our three "Duncans" we should have done very nicely. One had been put on the rocks, and we were short of two others salving her, and they were the three fastest of the class. We did not really require this "Dreadnought" to beat the Atlantic Fleet. I think it ought to be recognised that the Admiralty has done a great deal to improve the *personnel*, and if you improve the *personnel* you cannot

spend money on everything, and you do not want so much excess in *matériel* in that case.

Commander W. F. Caborne, C.B., R.N.R. :—I should like to express my appreciation of this very able and valuable paper, which has no uncertain ring about it, and is an embodiment of Imperial and patriotic ideas. While we require an efficient Army adequate to our needs in time of peace, and capable of rapid and large expansion in time of war, no one can deny the fact that by the Navy the Empire must stand or fall. Now, what is the British Navy? Why, simply our great national insurance, and I venture to assert that if we spend thirty millions a year, or even more, upon it, the premium is but a comparatively small one, when we take into consideration the enormous interests involved. Personally I am one of those who maintain that the Services, whether naval or military, should be entirely above party, but I am afraid that they are too often made the shuttlecocks of politicians and their party exigencies, the real interests of the Empire being neglected or lost sight of. The lecturer has given us a table showing the time occupied in building certain classes of British battle-ships and the time occupied in building certain German battle-ships. The "Canopus," "Formidable," "Duncan," and "New Zealand" classes appear to give an average of a little over three years and six months, while for the German ships given in the same table it is only three years. The "Dreadnought" has been built with great rapidity, but the question is, how often we could go on repeating ships of that description in the same time. Would the armour be forthcoming? Would the guns be ready? I think that is a question that should be definitely answered. I have just had a memorandum handed to me in which it is pointed out that the German battle-ship "Schlesien," launched last April, was put afloat in less than six months from the date of her first keel-plate being laid down; and yet it was stated in the House of Commons that we could give the German shipbuilding yards eighteen months' start and then catch up with them. Lieutenant Bellairs has alluded to the coming Peace Conference. I am not a believer in either Peace Conferences or Peace Societies. I have read some of the drivel emanating from the latter, and I do not suffer fools gladly. Undoubtedly the best guarantee of peace is the being prepared for war. A few years ago we had a Peace Conference at the Hague, and we were told that it would inaugurate an era of arbitration and universal peace among the nations. But what did we see? Why, in a very short time the outbreak of the Russo-Japanese war, a conflict of gigantic proportions. We are now within measurable distance of another Peace Conference, and I am already wondering in which direction we shall next have to look out for squalls. It is understood that at that Conference a proposal will be put forward with a view to exempting private property from capture at sea in time of war. Such exemption would be a delusion and a snare, and would still be dependent upon the will of the Power that was strong enough to disregard it. Even in the twentieth century, war cannot be made with rose water, and I may quote the words of Clausewitz: "War has but one means of action—force. Its use is absolute. To introduce a principle of moderation into the philosophy of war is to commit an absurdity." Going further, an absurdity is a blunder, and Talleyrand said that a blunder was worse than a crime. But a short time ago we were engaged in a great struggle in South Africa, and no war in the history of the world was ever waged in such a humane manner, although we were told that we made use of the methods of barbarism. Probably we were wise in our generation, as

it was the intention to bring the Boers under our rule, and we wanted them to settle down quickly after the war was ended; but there is not the slightest doubt that if we had not formed concentration camps and fed our enemy's wives and children, the war would have been finished in a much shorter period. For my own part, I do not want to see private property nominally exempted from capture at sea in time of war, and, with a Navy adequate to our needs, we shall be very well able to take care of ourselves in the future as we have done in the past.

Colonel F. N. Maude, C.B., Hampshire R.E. (Vols.), late R.E.:—After listening to the most interesting and able speech of Sir William White on the question of the financial bearings of the whole problem, and Commander Caborne's remarks about the insurance, it comes home to me that the only way in which we shall ever get the public to understand the importance of the question of defence is to attack them on the financial side. We shall never induce them to take a proper interest in the subject until we go to the bankers and make the bankers understand what forty-eight hours of war will mean to England. It is impossible to produce reliable figures, but we can say that our losses would be beyond any one man's time to count or to handle. It is a reasonable certainty that every penny of savings, savings for old age pensions, for insurance funds, everything we have of that kind, all the money saved in England by the thrifty population, would be absolutely lost, and old age pensions and insurance funds would be broken up by the terrible death rate that would follow on eighteen months of war. I do not mean simply the killed and wounded in battle, but the terrible death rate that would immediately begin in our great centres of population, such as London, Birmingham, Manchester, Leeds, and so on, through the suffering that would crush out all the weaker people who now survive because food is cheap and plentiful. The moment the price of food rises the death rate will be enormous, so enormous that, practically speaking, it is more than doubtful whether any insurance company could pay the insurances they have granted. Every doctor, I believe, could confirm this. The next point is: What would happen when the enemy came to England? The whole of the banking reserves of the county banks or the joint stock company banks would be affected. All the banks rely on the Bank of England to see them through. Of course, there is a good deal of fiction about the bank reserve, and at such times it is possible to get an Act of Parliament suspending the Bank Act; but before it would be possible to get the suspension of the Bank Act passed there would be, in the case of war, a month or six weeks of ruin—ruin widespread in every direction, and the existing shareholders in the banks, the directors, and all interested would feel the pinch. Now, instead of playing the "war game" as we sometimes do, let us have a "finance game" for bank managers and City men, and ask them to see how they would stand after forty-eight hours' war, with consols dropping three points an hour, as they easily might do. I think when once they had entered into the spirit of that game, playing at so much per point, as they did in the school which R. L. Stephenson describes in "The Wreckers," where Stock Exchange gambling was taught as part of the regular curriculum, I think they would realise as they never did before what war must mean to them. Then we shall have no difficulty in getting money for the fleet or the Army. The fleet, of course, comes first. I think you could get men to understand in that way. It is no good merely saying that the results of war will be so dreadful that it must never occur, as did Lord Overton before the celebrated commission of 1857.

He summed up the whole question in one passage, the most magnificent passage of English prose I think I have ever read. In it he showed the extraordinary effect the collapse of the finances of the country would have in every home in the country, and he wound up with the words: "The prospect is so terrible that *it must never be.*" From that day forward all financiers have contented themselves with saying: "It must never be," thinking because they say so the enemy will see it from that point of view too. It is probably because that sentiment is well known to Germany and France that for that very reason the thing will happen—they know our weakness, and quite understand how to profit by it.

Mr. A. C. Beck, M.P. :—It is with great diffidence that I rise at all this afternoon; but I thought, as one profoundly ignorant of naval matters though profoundly conscious of their great importance to our welfare as a nation, that I should like to try and put forward very briefly the average opinion of the average supporter of the Government. I was present yesterday afternoon, and, in common with other speakers, wish to thank Lieutenant Bellairs for his very valuable paper, but I was somewhat struck with some of the speeches made towards the end of yesterday afternoon's meeting. I think we are perhaps, rather inclined to forget that we are all of us, to a certain extent, faddists, and when I say faddists I mean that we all have various points in our mind which we consider of extreme importance. I am happy to think that, as far as I know, almost every thinking man I have met is agreed that the Navy is the most supreme of those points, but the fact remains that there are many other points also of great importance in people's minds, and the present Government has been returned, as you all know, with its head full of schemes of social reform. Those schemes of social reform mean money. To take one example: I personally am greatly concerned and interested in the welfare of our agricultural districts; I believe the absence of population in the rural districts is a very grave menace to the future welfare of this country. But if you are going to re-populate the rural districts of the country you want money just as if you are to maintain your fleet you want money. The Government's business is to reconcile the various claims made upon it. Something like three or four times a week I am called in the House of Commons to a Committee meeting of various Members of Parliament, whose whole intention is to claim money from the Government. We sign petitions, we get up agitations, we button-hole Ministers, all with a view of getting them to spend money. It is well known to everyone who takes an interest in finance at all that during recent years a large portion of our floating debt has been in the hands of foreign bankers. At any moment they could have called in that debt, and we should have had to meet it, and I believe the result would have been almost as disastrous to this country as the loss of a great fleet action in the Channel. That is Mr. Asquith's problem, and it is the difficulty of meeting it which I think some of the speakers yesterday afternoon did not realise. That is the reason I am speaking this afternoon, not because I venture at all to argue on the merits or demerits of Lieutenant Bellairs' paper. Personally I believe Lieutenant Bellairs is doing a good work in Parliament by continually agitating for the efficiency of the Navy; but you must remember, in justice to Members of Parliament, that there is a great diversity of opinion even in naval circles on these matters. As a humble Member of Parliament, I sat here this afternoon and heard Sir William White's most valuable remarks, and they have a great influence on me, and before opposing the Government I should have to consider all these things. I

have spoken to a great many Members of Parliament on this subject, and my own opinion is that the House of Commons, with remarkably few exceptions—probably a couple of dozen exceptions—will always vote the Government such supplies as they require, if they are told there is the least danger of our naval supremacy being lost. But we must, as ordinary humble laymen, follow the Board of Admiralty. If any of you, gentlemen, can prove conclusively to us who sit in the Commons that the Board of Admiralty is absolutely wrong, I believe we would revolt almost to a man. I would not venture to speak for the Socialists, but I can speak for ordinary Members of Parliament. This is our difficulty, and this is the one thing I would venture to bring to your notice this afternoon, that we are not deliberately hostile to Army or Navy expenditure. I believe every man almost in the House of Commons is prepared to make any sacrifice to ensure the safety of the Empire; but, if I may speak very frankly, there is a certain danger that the constant cry of "Wolf" may defeat its own object. You must remember that in the House of Commons we represent a large number of votes. On every platform I have sat there was a great deal of talk about undue taxation and high rates, and I should not have been a Member of Parliament to-day if I had not promised to do what I could to reduce the taxes. I safeguarded myself by adding that I considered money must be spent upon the Navy to any needful degree. Beyond that I stand here pledged to economy, and so does practically every Member of Parliament. Even my opponent, who is not so happy as to be a Member, if it is a happiness, which I rather doubt after ten consecutive months of it, was also pledged to economy. I humbly suggest to those here who take such a great interest in naval affairs, and guide public opinion, that they ought to confine themselves to pressing for what is absolutely essential for the welfare of the Navy. What Lieutenant Bellairs says is perfectly true. If you can come to the House of Commons and say that a thing is absolutely essential, I believe you will get it without any division at all; but as long as there is divided opinion we cannot hope to achieve that result. I thank you for listening to an ignorant layman, and I can only assure you what a pleasure and great education it has been to me to come here, and I hope it will not be the last time I shall be allowed to be here.

Mr. Robert Duncan, M.P.:—If not out of place, I should like to say a sentence or two in regard to one matter of naval strength of which, as a body of experts helping to form and instruct public opinion, we should take notice, and that is the expenditure on coaling-stations. Coal, or whatever fuel is used, being the life of the Navy, must be looked to, and if on that matter we can bring, individually or collectively, any influence on the Government, it might be exerted to see that a due amount is spent on coaling stations, well selected, well equipped, and well guarded, all over the world.

Lieutenant Carlyon Bellairs, in reply, said:—The reward of any lecturer who comes to this Institution is the discussion which he evokes, and I must confess that I am very well satisfied with the discussion. We have had representatives of almost every branch, representatives of the Army, the Navy, and the most distinguished naval architect of our time in Sir William White. First, I should like to devote my remarks to something Admiral Henderson said. He made some very valuable remarks about overtime. We must remember that if we give in to the belief that we are not to work overtime, then all the ideas of rapid shipbuilding to a

large extent fall to the ground, for though the Admiralty promised not to work overtime in connection with the new "Dreadnoughts," they have begun already to work overtime in preparing the slips, although the Labour Party has not yet found it out. Admiral Henderson said something about trusting the Board of Admiralty. If we look back on the secret history of the past, such as that revealed by Admiral Sir Vesey Hamilton, when have we found reason to trust the Board of Admiralty, and, in many respects, the Sea Lords of the Admiralty? They brought forward a Memorandum of November, 1905, laying down the minimum programme, after pressure for economy had been brought to bear on them by the last Government. Since then we have lost the "Montagu," we have had the French and German programmes, and now we wonder why there is not an increased programme. Instead of that we have reductions. I think, to a large extent, therefore, they have put themselves out of court. If we are to give a complete trust to the Board of Admiralty, that would apply to all the discussions. We must discuss these things if we are to have a proper state of things. Sir William White gave us some very valuable remarks about the absurdity of the secrecy in connection with the new ships, and Captain Caborne referred to the fancy quick building of the "Dreadnought." I do not believe the "Dreadnought's" guns are the guns that were bought for the "Dreadnought"; I believe they were the guns ordered for the "Lord Nelson" and the "Agamemnon.' I know that six months before the ship was laid down material had been ordered, and I know an average of 1,200 men were daily working overtime on board that ship. No men worked overtime on the other battle-ship building, the "Britannia," and over twice as many men were daily employed on building the "Dreadnought. At times the numbers went well over 1,500 working overtime. I now come to the vexed question of unarmoured ends, with which Sir William White and Admiral Fremantle dealt. Sir William White referred to the battle of Tsushima, and referred to the complete belted ships. He took them as instances of belted ships sinking. They were heavily loaded ships, carrying stores to Vladivostok. The effect of overloading was precisely the same as unarmoured ends; there were unarmoured portions of the ship in contact with the water-line, and that is just our contention of the danger. I have given a list of the unarmoured ends in Appendix B, and I hope that will be studied. You will find that only 13 battle-ships of the British Navy are completely belted from end to end, and that is a most vital point in the view of naval officers because of modern gunnery. We know perfectly well that the reason why the Germans built their battle-ships with large secondary armaments was because we had this enormous number of unarmoured end ships in the British Navy. They said: "We can bring our 6-inch guns to bear on the unarmoured portions of the water-lines of British ships." Sir Nathaniel Bowden-Smith and others referred to our being up to the two-Power standard at present, but the question of our strength at present was a question we were considering three or four years ago, and has nothing whatever to do with what we have to consider now. We introduce a shipbuilding programme not according to our strength at the present time, but according to what our strength will be four years hence in relation to the next two naval Powers, and that of course is the most important point we have to consider. I assert —and it is confirmed by every single table in the Appendices—that we shall not be up to the two-Power standard four years hence if the curtailed programme for 1907-8 is persisted in. Then there is the question of the rapidity with which we build. It shows the danger of a great authority

like Sir William White making statements in the *Times*. Sir Nathaniel Bowden-Smith immediately comes forward and says we build much more rapidly than other nations, and the same statement was made by nearly every speaker in the House. Sir William White never disputed my contention in his speech, never attempted to dispute the fact that the Germans build just as rapidly as we do. He told us it was a question of finance, and no one doubts that it is, and if you choose to vote more money each year you can build quicker. I have analysed every single battle-ship built in recent years, and shown that the statement made in the House of Commons by the Prime Minister is not true, viz., that the Germans do not build as rapidly as we do. What Sir William White showed in the *Times* was that we have greater resources, but that has nothing to do with the rapidity of building. Will Sir William White go as an umpire at a race meeting when a 100 yards race is being run and award the prize to the loser on the ground that the loser would have won if it had been a half-mile race? Such an umpire would be hissed off the course. Really, in a case of such importance as this I do not think the matter ought to be looked upon in that way; it is simply throwing dust in the eyes of the public. By going into elaborate calculations as to our resources and saying therefore we are building faster is throwing dust in the eyes of the public. Neither nation is trying to build up to its resources. The question of our ability to build 16 armoured ships a year and the Germans 8 does not enter into the matter at all. Sir Nathaniel Bowden-Smith made comparisons of our strength with Germany alone. The whole idea of being absolutely certain of our ground is that we may have to fight two Powers and even to provide for a neutral Power, and certainly we should not be able to put our best ships into the Channel and leave all our unarmoured end ships in the Mediterranean. The French are concentrating the whole of their effort in the Mediterranean, and that is put forward in the papers as an instance of the friendliness of the French for England. But do not the people who use that argument see that it is also an instance of the friendliness of France for Germany. France is putting the whole of her fleet where there are important British interests, and taking away her fleet from near the North Sea, where all the German interests are concentrated. Now, Sir Nathaniel Bowden-Smith referred to scares. Well, nobody wants a scare. I do not suppose anybody who came to this meeting thought we were trying to engineer a scare, or he would have stopped away. We look on our efforts just now as purely educational. But if you do not increase your programmes in future years we say you will get a scare right enough. We want to avoid a scare. Mr. Beck made a speech with which I was delighted. I wish the attitude of every Member of Parliament to this question was the same as his attitude. He wants to be convinced and get at the truth, and if he gets at the truth I think he will be perfectly fearless in maintaining our naval supremacy. I wish they were all like him. He mentioned what is a most important statement: that we meant permanent social reforms, and that costs money, which will have to go out every year. That proves my statement that the money we are saving now is looked upon as already allotted for permanent reforms—that is to say, it is entirely lost to the Navy. That is the danger of arguments like Sir William White's in favour of postponement of ships. Now that the Sea Lords have allowed the shipbuilding votes to go down, and promise that they will go down much lower next year, we shall all have to put our shoulders to the wheel before we shall be able to get those votes up again. Sir William White never contended that you would not have to build in the

future; he said we might safely postpone some of the building. Sir Charles Campbell yesterday referred to one of those projects which I think lead to the dispersion of our expenditure; he wanted a canal through Scotland at a cost exceeding ten million pounds. I want battle-ships and cruisers, which are vital; I do not think the canal is of vital necessity. It may be useful, but I do not think it is vital, and I strongly deprecate the demand being raised at the present moment, when we have a predominance of Scotch Ministers in the Cabinet. We have from the Prime Minister downwards, with Lord Rosebery attacking on the flanks, Scotsmen all! Captain Crutchley rather took me to task about teaching history in the schools. I entirely agree that the Navy League is doing a most admirable work as regards history in schools, but what is that amongst 44 millions of people? What I was referring to was that there is no effort whatever on the part of the Government of the country to teach history in the schools. The efforts of the Navy League, admirable as they are as an example to all others, are a mere drop in the ocean compared to what is needed in order to educate the vast army of voters who will run us 10 years hence. Mr. Beauchamp referred to the "Invincibles," and said what we all say—and Sir William White said the same thing—that we never know what to call them. What we object to is the confidence trick: counting ships at one and the same time as battle-ships and as cruisers. Either they are battle-ships or they are cruisers. The same thing occurred in the old days. They were too clever by half. They built 50-gun ships which they said were battle-ships and frigates, and they never were a success. I think that example in history should be remembered. We are doing exactly the same confidence trick with the destroyers. We have these coastal destroyers half the tonnage and utterly inferior in armament to the destroyers the Germans are building, and though not fit to operate on the enemy's coast, they are reckoned as destroyers! The Germans are going right ahead of us with their programme of 12 destroyers a year. With reference to Mr. Beauchamp's important point about skeleton and nucleus crews, it emphasises our difficulty in the House of Commons. We cannot get any information of any sort out of the Admiralty, and therefore cannot have discussion. The House is asked blindly to trust the experts. I do not think that is right. We are quite entitled to know what the skeleton crews are, and what the nucleus crews are. You can call two men and a boy a skeleton crew. Perhaps the Admiralty are going to do the right thing and have large crews, but I do not believe they are. My own view about the two-Power standard is that one of the best means of attaining it would be for the First Lord's statement every year to include the names of the foreign battle-ships which were taken into consideration by the Board at the time the Estimates were framed. Then, if an additional battle-ship is laid down by one of the two principal foreign Powers, it ought to be an understood thing that we should lay down an additional battle-ship to meet her. Sir William White dealt with the programmes of the foreign Powers, and referred to the fact that of the French battle-ships, only two would be ready by 1910 and four by 1911. That was the very point I took into consideration in my paper. I said it was not necessary, owing to the slowness of building in France, to take those battle-ships into consideration until 1908-9 programme, which would be completed under favourable circumstances in 1910-11. But I showed that we should have a programme of three this year, seven the next, and nine or ten the year after, and I carried the meeting with me when I said that that was a very uneconomical way of proceeding, that it was far better to have five

armoured ships a year than ten battle-ships in the future. There is only one thing more that I desire to refer to. Sir William White, to a certain extent, proved that in the naval view unarmoured ends were right when they were first brought in. That may be so, but invention went along, and we got the Harveyised armour, by which you can defend twice the area with the same weight of armour, and I doubt whether unarmoured ends were right after that. At any rate, foreign Powers continued to build complete belted ships, and said they could sink our ships with their secondary armaments, whereas we went on with the unarmoured ends. Sir William White undoubtedly, in the ships that he designed, brought the Navy to a very high pitch of efficiency, so that we carried through the Fashoda crisis with an expenditure of only £13,000 extra; but it is perfectly certain that those ships that stood us in such good stead at the time of the Fashoda crisis, with the modern developments of gunnery and such marvellous shooting as the "Drake" made—75 per cent. of hits at 4 miles' range—those ships with unarmoured ends would not possibly avail in battle to-day.

The CHAIRMAN (Admiral Sir R. H. Harris, K.C.B., K.C.M.G.):—I think you will all join with me in agreeing that this has been a most valuable lecture, and that the Institution is to be congratulated on having the presence of so many Members of Parliament. It certainly is a great thing for us and a great thing for the Navy that naval matters should be thoroughly well understood by those people who represent the country in Parliament, and who have the whole power of finance in their hands. It is money which gives us a big Navy, and unless the Members are prepared to vote, and the constituents approve of their vote, the money is not forthcoming. Modern wars must be short, sharp, and decisive. There is no nation in Europe capable of carrying out a war with a neighbour for more than eighteen months or two years; they would be by that time financially broken. Much more likely is it that in the next naval war one nation or the other will be brought to its knees within the first week or ten days. Therefore I say, in reckoning up our naval strength, that naval strength should have a sufficiently large margin to replace those casualties that might happen accidentally or through the better strategy of the enemy—casualties that may make a fleet in the first week possibly inferior to its opponent. We have an instance of this in the Russo-Japanese war. I imagine that when a war between ourselves and any Continental Power, say Denmark, for instance, took place (I say Denmark because I do not wish to name the Power I have in mind), their destroyers, which are the equal of our own destroyers, would first attack our battle-ships, and I think our force of destroyers is not up to the standard strength to that it should be kept at to prevent such an attack. Time does not permit me to say much more, but I wish to mention the increased size of battle-ships. As we increase the size of battle-ships we have to build nearly two to the one of other Powers, and therefore the expense is very much greater. One "Dreadnought" is supposed to equal four older class vessels, but the risk to one of these ships of being destroyed or disabled by a Whitehead torpedo or a submarine mine is just as great as the risk of the smaller ships, while in the event of a "Dreadnought" being destroyed, it is equal to wiping out four battle-ships instead of one. All this has to be taken into consideration in measuring naval strength. Returning to what I said at the beginning of my remarks, I maintain that every ship should be kept in an absolute state of fighting efficiency. That

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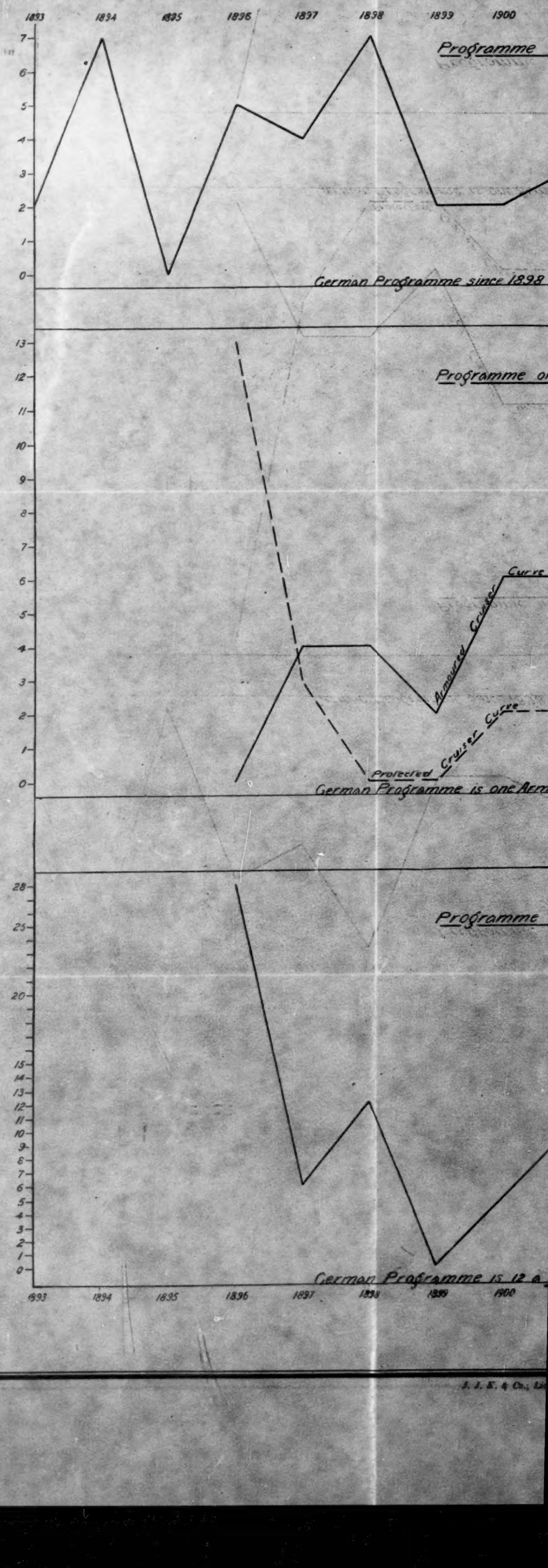

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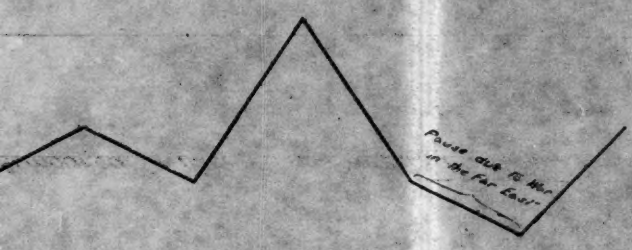

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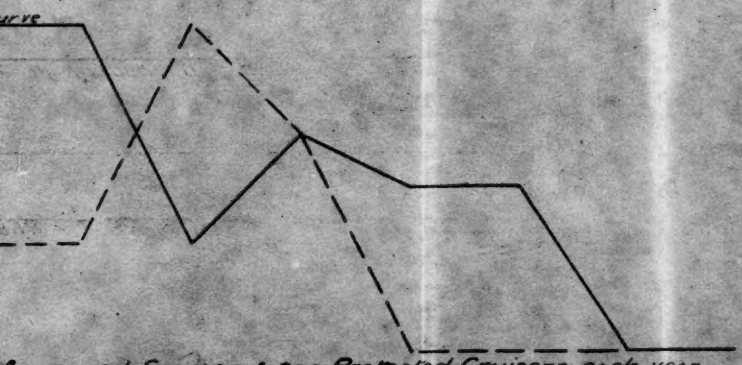

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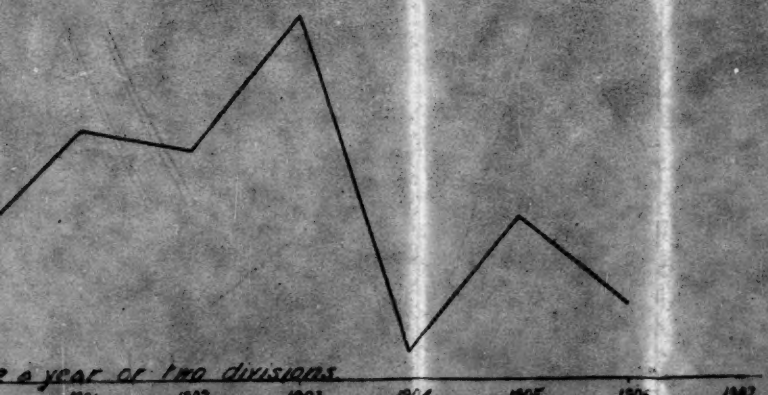

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is a greater safeguard than relative numerical naval strength; but can we say that a ship with a nucleus or skeleton crew, with her complement newly completed and turned out to sea to fight a battle, is in a state of absolute sea-going fighting efficiency? She may be so on paper, but I do not think she will be found so in practice. I thank the lecturer in our names for his very valuable paper, and congratulate him on the excellent discussion that has followed it—a discussion which I think is almost unique in this Institution.

IS A NATIONAL ARMY NECESSARY FOR THE BRITISH ISLES, AND IF SO, HOW SHOULD ONE BE FORMED AND TRAINED?

By Captain J. B. G. TULLOCH, p.s.c., 2nd K.O. Yorkshire Light Infantry.

A NATIONAL Army may be defined as a trained force that can be expanded from a weak peace establishment to a force that would contain, if required, the whole available physically fit manhood of the nation for war. With the exception of England all great nations have such National Armies, and we do not possess one because the necessity for such has never been understood by the British nation, which pins its faith entirely to the Navy. There are two very distinct opinions on the question whether a National Army is necessary or not.

The first is known as the "Blue Water" School, which believes that the British Navy is so all-powerful that not even a hostile dinghy could land its crew on the British coast.

The second is the "Invasion Bogey" School, which has ever before its eyes the vision of hordes of Germans marching unopposed on London.

But there is a large and steadily increasing number of those who are of opinion that the ideas of the Blue Water School are anything but justified, and that if the nation continues to trust in them we shall, in plain English, be living in a fool's paradise. There is now a special reason for the increasing feeling of uneasiness with reference to maritime defence, and that is the steady and very systematic increase of the German Fleet, and the avowed determination of the German people to become our equals, and in time our masters, on the ocean. Race dislike, the Germans say distinctly, they have none, but they state plainly that they want our possessions and trade, and mean to have them. This state of the national feeling is by no means a recent newspaper production; it has been growing and increasing steadily ever since the Franco-Prussian War. "Deutschland über alles" has taken the place of "Die Wacht am Rhein."

The exponents of the Blue Water School of former days went for the enemy whenever they could find him, chasing their foes round the world. But could a similar course of action be ventured on now? That France will always be on our side, because the nations are so friendly just now, is to utterly ignore even the most modern history of the two countries. With a hostile Navy at all approaching ours in strength, and having its bases only a day or two's steaming from us, what Government, strong or weak, would be allowed by the people to send away from home waters the only force which, without a National Army, would stand between them and destruction?

But even if our Navy succeeded in shutting up hostile fleets in their ports, how do the "Blue Water" exponents propose to bring the war to an end? We must have an Army to complete what the Navy has begun. The Japanese even used an Army to destroy a fleet.

In 1782-83, the French Admiral, Suffren, fought five battles with Admiral Sir E. Hughes in Indian waters, and although he could not drive the English fleet from off the high seas, Suffren succeeded in landing French troops in India in such numbers as to imperil the supremacy of English rule in Southern India. Moreover, although Hughes' fleet was still very much "in being," Suffren captured Trincomalee, landing troops for the purpose.

As regards the effect of even small raids, "General Humbert, with over 1,000 French troops, in Killala Bay, in 1798, practically neutralised the Irish garrisons of 100,000 men for 17 days, and compelled Lord Cornwallis to cry out for further reinforcements."

"In 1796, though the British fleet was blockading Brest, yet a French expedition slipped out from the Goulet, and the adjoining bays, and got away to Ireland with 20,000 men without serious opposition. And 36 out of 43 French ships were off Cape Clear, and those that reached Bantry Bay remained there for over a fortnight without being interfered with by the British Navy."

Mines and submarines have compelled modern fleets to keep a very long way out to sea when on blockade duty, thus facilitating the escape of the enemy, who, owing to steam power, can now put to sea on the darkest and stormiest nights. To enable the Navy to act as they did so gloriously a hundred years ago, a National Army, to protect the country and permit of the fleet going wherever necessary to attack the enemy, is a necessity.

There is another reason also why a National Army has become necessary. Up to within recent times, when great strategical railways were unknown, we had no land frontiers which could be seriously threatened by great Powers. But, as the late war in Manchuria has shown, we are now in a very different position.

In the Boer War, when our enemies numbered at the outside some 50,000 or 60,000, we had to put a quarter of a million men into the field, leaving the United Kingdom defenceless as far as an Army was considered.

With regard to India, the strength of the force which may some day be required to save that country, has already been clearly stated and agreed to by the highest authorities, political as well as military, and would be so far in excess of the numbers sent to South Africa that nothing but a National Army behind the Regular forces would supply the numbers required. Lord Roberts' estimate is 500,000 troops for the first year of the war for the field armies, and line of communication troops, and for keeping India quiet; and to make up wastage, and increase the power of the field armies as the railways developed, nearly 300,000 men during each succeeding year of the war. Towards this number Sir E. Elles says that India can supply, exclusive of Imperial Service troops, a total field army of 139,000 men.

There are also our Treaty obligations to be observed with regard to the violation of Belgian territory in case of war between Germany and France.

Moreover, the question of the defence of Canada must be considered. This country has a frontier of 3,500 miles towards the United States, and a population of 6,000,000 against 70,000,000.

War between ourselves and the United States would certainly require us to land an Army to help Canada far beyond the capabilities of our present Regular Army.

* * *

The material which we have at present, out of which to form our National Army, consists of the Militia, Volunteers, and Yeomanry. The Regular Army is not considered, as it will have been already probably sent abroad. The Reserve of the Regular Army will have been very soon exhausted in the process of bringing our "squeezed lemon" battalions up to strength.

The Militia cannot be looked upon, as at present constituted, as an efficient fighting force. "The majority of the men composing the Militia are practically the riff-raff and failures of society. They are mostly half starved during the winter, and induced to come out for a month's training during the summer for the sake of the few shillings and the food they obtain." Their average of physique and intelligence is very low. Their non-commissioned officers are of an inferior class. The permanent staff consists, as a rule, of Regular sergeants who have married and want an easy life, or of those who have been recommended for service with the Militia by their company officers, because it was desired to get rid of them.

"Militia officers are of two classes: one, that of the youths who, being somewhat deficient in brain power, go into the Militia because they think that it is an easy method of getting into the Regular Army; the other, composed of those who look upon a month's training as a pleasant change from the humdrum of their everyday life. Neither class over-works itself professionally."

With regard to the training of the Militia, the least said the better. The unit comes out for a month, goes probably to an already overcrowded training ground, and everything is hurried through and slurred over. If there is ever a field day, or a day's training off the range, the proceedings are farcical and unreal to a degree.

The Volunteers are also at present useless as a fighting force. I would guarantee that any German company of 250 men would go through any ordinary Volunteer battalion like a knife through butter. Certainly there are a few corps, like the London Rifle Brigade, the London Scottish, etc., who should make a good fight, but these exceptional corps are so few that they do not leaven the mass. And if Volunteers are not to fight Continental troops, why spend money on them at all? If they are to fight, say German troops, then must they not on the day of battle be equally well trained, man for man, and officer for officer, as their opponents? Politicians tell their audiences that we shall have plenty of time after war is declared in which to train them to the right pitch. That I doubt. But even so, where at present are the trained officers who will teach them, and where is the land on which to train? Are these considerations that can be left till war is declared?

There are some 25,000 Yeomanry. If they were only as efficient with the small amount of drill they do, as they are beautiful to look at in their uniforms, we should have no fear of scouting duties

being badly done. But, unfortunately, this is not the case. If Yeomanry are ever to be sent abroad they would require at least a year's hard training to make them fit to cope with Continental cavalry. If they are only to be used in England as scouts, in case of invasion, there are too many of them. England is not a cavalry country, and half the present number of Yeomen well trained, the remainder being mounted on bicycles, would be a cheaper and more effective force. Evidently our new National Army must be very differently organised and trained to the foregoing.

In the present state of feeling in England towards the Army, it is impossible to use any form of compulsion in order to obtain recruits for it, neither can any great outlay of money be expected. "Efficiency with economy" is a very taking political platform phrase, but there is another expression, "Nothing for nothing," which, in commercial England, will very soon put an effectual stop to any endeavour to produce a National Army by making those who form it put their hands deeply into their own pockets, whilst others stand by and jeer.

We want our National Army to be a well trained and efficient one. Now, no Army can possibly be efficient without ranges to fire on, and ground on which to manœuvre. These require money, and any scheme leaving them out of consideration is useless. No scheme for forming our new Army will ever near completion unless we have a strong Government in office, likely to remain there for some years, and a Minister for War who, in spite of all the opposition in Parliament from those who think that their interests are threatened, determines to carry the new scheme through to the end. It seems to be an extraordinary thing that although there are at present about 358,000 Auxiliary troops in England, there is no representative for these troops on the Army Council. If we desire to form a National Army that the people are to take an interest in, and "run" themselves, as one might say, it is very evident that we must not attempt to form rules and regulations for this Army in the same cast-iron way that prevails in the Regular Army. The people will not stand it. There must be a give and take, and the trades, pursuits, ideas, leisure, and desires of the population must be considered. To convey these ideas, and keep a hand on the pulse of the popular opinion, must then be the function of the representatives of the National Army, who should be members of the Army Council, for advice purposes.

Therefore, it is proposed that a member representing the National Army should be added to the Army Council, and that whenever there is a meeting of the Army Council to determine any far reaching changes, that this member be present, and that attention be paid to his ideas. Similarly in each of the present commands there should be an expert officer of the National Army to give advice when asked for to the General Staff of the command, and to communicate the ideas of the district to the member of the National Army at the War Office.

The terms Auxiliary Forces, Militia, Volunteers, etc., should be abolished. There should be merely the Regular Army, and behind that "The National Army."

This Army will, however, be composed of two classes: the one being units formed from men willing to serve abroad, the other units composed of men who only wish to serve for Home Defence.

Every unit to have its own Reserve.

We have seen that it may be necessary to send troops of the National Army abroad to help the Regular Army. I consider it to be better to send units complete with officers and men, than driblets of companies to be attached to other corps, and for this reason:—It may, for strategical reasons, be necessary to form other armies than the one, or ones already operating. If there are a number of corps ready with their own reserves, then the formation of the Auxiliary Armies is simple. The Regulars must keep up the supply to replace their own wastage by a proper system of forming and training depôt battalions at the regimental depôts.

How are the men for the National Army to be obtained? I have made exhaustive inquiries in the country, and I find that no proper organised system exists at present for recruiting for the present Auxiliary forces. For the National Army this must be changed. The people in the country are in absolute ignorance concerning the Army. They seldom see a soldier, and they know nothing whatever about the Volunteers in many places. Civilians also complain that the Army keeps itself apart from them, and that they are not allowed to enter barracks, etc. Even at Strensall, where any number of Militia battalions train, I have found that many eligible youths have not joined the Volunteers because they have not been asked to do so. On the other hand, a sergeant of Volunteers came round recruiting for his corps to Stamford Bridge, a village a few miles from York. By personally interviewing the eligible youths he obtained 7 or 8 recruits in three days.

Now this shows us that every village in the United Kingdom must be visited if we are to impress upon the able-bodied male population what is required for the National Army. No amount of political speeches by War Ministers will affect recruiting. The village populations and the mass of the town populations never read his speeches. We must get at the people by direct means. To do this, system is required. We already have numberless cadres of Volunteers and Militia scattered all over the country, all with headquarters in various towns.

Using these present headquarters as centres, I propose to allot to each a number of parishes. To each parish is allotted a National Army Recruiting Agent. This agent is to make a house to house visit, and personally interview all eligible young men, and impress upon them the advantages that a military training would give them. This is not such a difficult undertaking as it would at first sight appear. If we take Yorkshire, a fairly large county, as an example, we can see how the scheme would work by going into detail.

A glance at the Appendix A will show that each agent is responsible for only 216 men on an average. Surely there is no great difficulty in this. Of course, parishes differ in the numbers contained in each. If a parish has a particularly large number of inhabitants, more than one agent is allotted; if the parishes are small, one agent can do several. In any case, the number of agents shown in Appendix would not be exceeded.

These agents can be the postmen of the district, old pensioners, picked men of the local National Army battalion, village policemen, rural policemen, etc., and their duties are to see that recruiting

literature and pamphlets, describing the National Army and its aim, etc., are delivered to every eligible male inhabitant of their allotted area. We must have recruiting literature, posters, etc., distributed. We must advertise, in fact. We must advertise our National Army so that every man in the British Isles knows about it. How is advertising for the Regulars carried out? Very badly indeed. Posters are exhibited outside police courts, outside the prison-like walls of old-fashioned barracks, situated in filthy slum areas in big manufacturing towns, where nobody but undesirables see them, or else they waste their allurements on the desert air of places like Salisbury Plain and Aldershot, where nobody ever sees them except the men who have been already caught. "In business, when a firm is not doing great sales, a certain sum of money is taken from capital, and expended on advertising, and generally with good results to the firm." We must do the same. If the War Office cannot invent a means of distributing alluring posters and pamphlets in the most remote village and hamlet, then get the *Daily Mail* or *Times* to do it. But when advertising remember that the mass of the people read *Reynolds' Newspaper* and the *People*, and not the *Times*. But I think my National Army agents should be able to do it. An allowance for repair and upkeep of their private bicycles, and a very small retaining fee per quarter would suffice to enlist the services of National Army Recruiting Agents. As uniform is a great attraction to village populations, smart ex-non-commissioned officers, especially those who had medals, should be permitted, even after they had left the colours, to wear the uniform of the local National Army battalion whenever engaged in recruiting. The adjutants of the National Army battalions to supervise the agents.

To save expense and to avoid unnecessary changes, the present headquarters of the present Auxiliary forces could be made use of for forming the National Army units. To every present headquarters should be allotted so many parishes. To each collection of parishes, allotted according to population, are assigned the provision of so many battalions.

For instance, in the N.W. of Yorkshire the number of parishes allotted to Richmond might, perhaps, only be sufficient to produce one battalion of the National Army for home service, and one for foreign service, whilst the parishes allotted to Huddersfield might produce two or three home service National Army battalions, and one foreign service National Army battalion.

This brings me to the terms and forms of service.

We have seen that it will be necessary to send a certain number of National Army battalions abroad. Now, when a man is asked to enlist in the National Army, he will be asked whether he desires to enlist for service abroad in case of emergency, or only for home defence.

The Foreign Service National Army battalion is to be composed of men, who, for say an annual bounty, are prepared, when called out, to serve abroad if required. These battalions must, of course, receive a higher training than the Home Service battalions, as they might be required at an early stage of the war.

Every unit, whether a Home or Foreign Service one, to have its own Reserve.

This, then, will produce three categories in the British Army:—

1. The Regular Army, with its Reserves, ready to mobilise at a day's notice, and be transported anywhere when transport is ready and occasion requires it.
2. The National Army Foreign Service battalions, batteries, and squadrons, with their Reserves, ready to follow the Regulars if required.
3. The National Army Home Defence Army, with its Reserves, ready to mobilise and commence further training the moment war appears to be unavoidable.

It must be assumed that we are going to give our different levies, or categories of the National Army, a much more practical and complete training than they at present receive. This will at once cause a good number of those at present in the Auxiliary forces to resign. But on the other hand, we have spread our recruiting agents throughout the land, and where one man thought about the Army, now 20 would. Therefore, our numbers may diminish from one cause, but rise from another.

Moreover, there are really more Volunteers at present than we require. Some battalions are over 1,000 strong, and this is more than the ordinary Volunteer colonel can command. Therefore, fixing a limit to the number allowed to be actually serving at one time with a National Army battalion, and granting that although many men go, others will take their place, I think we may safely assert that we might fix the strength of battalions at, say, 500, and cavalry regiments at 400. A battalion of 500 willing men, organised in 8 companies of 60 men each, with 20 over for the band, is as many as can be found in most of the "squeezed lemon" Regular battalions at home. But each company must have at least 60 men ready and willing to drill when required. Otherwise the numbers would be too small for practical company work, and then we should have to increase the establishment.

The question as to the age at which men are to be taken is most important. In a purely voluntary Army composed of men in employment, we must think of the convenience of employers and employed. Otherwise our recruiting for the National Army will fail. We must study here the wants of the people. I have discussed the subject with employers of labour, and it appears that the younger the men are taken the better. Employers say that a youth is of least use when he has only left school a short time, and before he has become a skilled and expert workman at his trade or profession. Moreover, they state that they would be only too willing to allow every convenience to lads in their employment who desired to drill, because they all see that military discipline is good for their otherwise very independent employées. As a matter of fact, many employers of labour are in favour of some form of compulsory service, in order to engrain even the smallest habits of obedience in their workmen. But, on the other hand, it would be useless to take lads who were too young, as they would be unable to bear the fatigue of training. Seventeen appears to be a suitable age. The lads are then sufficiently strong to be able to handle their rifles and march, and nobody at 17 is an expert or skilled artisan whose absence from work would be grudged by an employer.

According to present Volunteer regulations a man enlisted in a Home Service National Army battalion would, in 5 years' service, do a minimum of 40 drills of 1 hour during his recruits' course, and 10 drills of 1 hour for company training in the first year. Total 50 hours. During the next 4 years he need only do 40 hours. A grand total in 5 years of 90 hours.

Colonel Pollock has shown us that in 6 months, by hard work, one can turn out a fairly well trained man, but still, only an amateur. Now, eliminating all setting up drill, gymnastics, etc., as not absolutely necessary for a Home Defence man, we should require at least an average of 2 hours' drill daily throughout the 6 months, or 360 hours. This is exactly four times what the present Volunteer doing a minimum course does, before he can be considered as of any value as a soldier. But if we want to form a Reserve for each battalion or regiment, we must fix a limit of time during which each man serves with the colours of the National Army battalion. A period of 5 years seems sufficient. At the end of that time the man will be becoming an expert at his trade or profession, and will not be able to spend so much time drilling. But during this five years the National Army man must be prepared to put in a minimum of work four times greater than is the minimum at present.

After all, this is not asking too much, as many Volunteers do that now, and we must eliminate all those who join the present Volunteers merely for the sake of wearing a uniform and shooting for prizes at rifle meetings.

The Foreign Service National Army battalions must have still more training. For these, at least a six months' course for recruits will be necessary. After that six weeks annually.

Now, in order to make the training periods elastic and fit in with the work of the would-be recruit, any man who so desires should be allowed to come up to battalion headquarters and do his drills at any convenient time of the year.

The battalion headquarters to be the present regimental depôts and Volunteer and Yeomanry headquarters, and if that does not suffice, then the drill halls and armouries of the present outlying Volunteer company centres could be used. At present, at our regimental depôts, nothing is done in the way of practical training beyond preliminary gymnastics and such simple exercises as forming fours, marching correctly, and handling arms. There should be a squad for work of a higher nature, such as skirmishing, taking cover, attack practice, sentry work, etc. This squad should be at work all the year round, and be under picked instructors, not the usual depôt instructor, who is generally a most inferior non-commissioned officer.

Once a month names could be sent in by the adjutants of National Army battalions, of men desirous of being drilled, to the officer who superintended the work of this advanced squad, and anybody should be allowed to join. It should not be requisite for men of this squad to live in barracks, or even to be fitted with a uniform. All that is requisite is, that any man having given in his name and appearing on his bicycle, from some miles away, say, should be given the training he requires. Numbers of men living near depôts, whether they belonged to Home Service or Foreign Service National Army

battalions, would like to gain their military training this way. The test for efficiency is not to be whether a man attends so many drills, or makes so many points in musketry practice.

The present method of calling a man an "efficient" Volunteer just because he happens to make a certain score on the range and does so many drills is absurd. The public is defrauded by the present system. A Volunteer C.O. told me that one of his men was physically unfit to march, but could just do his annual drills, and had to be brought down to the range in a cab. Once on the range he could lie down and fire his requisite rounds, and being a good shot, made the correct score and became reckoned as an efficient, and counted in the numbers earning capitation grants. There are hundreds of similar cases, but as under the present system capitation grants are what provide the money for running the battalion, fraud in showing men as efficient when they are useless is bound to take place.

Capitation grants must be done away with.

It would not be difficult to estimate how much it would cost to run a battalion of 500 strong for a year, everything included. That amount should be allowed to be spent by the battalion so long as the numbers of men were forthcoming.

The real tests for efficiency to be:—

a. Medical inspection. Anybody not fit to serve abroad to be relegated from a Foreign Service battalion to a Home Service one.

b. For a Home Service battalion a thorough knowledge of handling a rifle, skirmishing, attack and defence practices, art of taking cover and knowledge of outpost duties.

For a Foreign Service battalion the above, but advanced and rear guards, digging shelter trenches, etc., thrown in.

c. For the Home Service battalions a course of musketry similar to what our Regulars fire now, halving Part II., but without any field practices, or marksmen's practices.

For Foreign Service battalions the same course as the Regulars fire, halving Part II., without marksmen's practices, but including individual field practices.

Quarterly boards, composed of the adjutant and the C.O. of the National Army battalions, to examine the men by batches in the skirmishing, etc. The test to be thorough, and any men who fail to qualify as efficient to do another year colour service, or pay a fine. The men to come up when they like, but must pass annually.

A musketry standard of efficiency must, of course, be set. Any man failing, to try again next musketry season. If he fails he should be struck off the rolls of the battalion, or heavily fined. After a man has done 5 years' service with the colours of either class of battalion, he passes to the Reserve for another 5 years. The adjutants of battalions to be posted up as to the addresses of all men belonging to their battalion reserve. Every male in England to be registered in the parish where he was born, and once he joined the National Army, so long as he was on the battalion books to notify change of address, or pay a fine, until his final Reserve service was finished.

For Home Service battalion Reservists a minimum attendance of drills to be carried out, and the man to join a rifle club and fire so many rounds at the club.

For Foreign Service battalions also a small amount of drill annually, and a short course of musketry to be performed.

During the third 5 years a man of either battalion could, if he chose, still keep his name on the regimental books, but having once said he would be eligible for the second period of Reserve service he must keep the regimental authorities posted as to his address, or be fined.

Each year all Home Service battalions to go into camp for at least a week for battalion training, and a week following for brigade training, and only men who have passed the efficiency test to go to camp. Now, in each battalion area a committee should be formed of local men, who might be county J.P.'s, retired officers, etc., who would be responsible for impressing upon the eligible youth of the district who seemed to be likely candidates, the desirability of becoming officers of the National Army. A vast knowledge of tactics, fortification, law, etc., is not necessary for an officer of the junior ranks of the National Army. What is wanted is a knowledge of how to command a company or half-company in the field. For this purpose they should be practised in commanding the special squad mentioned already.

When they have learnt that part of their duties, then they can go to advanced classes, which should be formed in every command. Why an officer of the National Army should be sent miles away down to London or Aldershot to go through a school for Auxiliary officers, and cram how to drill like the Guards, I do not know. It would be much better to attach them by the dozen if necessary, to Regular battalions doing their annual course of military training. No Regular company that I have ever seen in England was ever up to strength in either officers or men, and the more National Army officers, non-commissioned officers and men, that could be conveniently attached to bring Regular companies up to strength the better.

With regard to the higher ranks of the National Army there is a grand opening for all the majors of Regular units who, although thoroughly efficient officers, by no fault of their own are cast forth from the Army for age. These are the men who should command the National Army battalions.

Have an honorary colonel if you like, to draw the V.D.'s, and preside at social functions, but the real commanding officer must be an ex-Regular, and one physically fit to command in the field. How many of the present Volunteer colonels could stand a week's campaigning even in England? Why need there be friction? Many corps under the present arrangement already have an honorary colonel. The ex-Regular major would be only too glad to do the training work for a small annual sum. In Germany, in every town where there are soldiers, there is an "Exercier-platz." Also the men drill on every open space in the town. Why not the same in England? Every public park and open space should be available for training Regular and National Army troops, and should be made so by law. If this does not produce sufficient ground, then

have local committees formed to take steps to procure ground by either hire or purchase. According to Professor J. Long the distribution of the area of the British Isles is:—

	Acres.
Total area of land and water	56,786,741
Total area under crops	32,323,176
Mountain and heath land	12,801,617

Surely a great deal more of the 12,801,617 acres can be used for training purposes than is done at present.

Wherever there is a headquarters of a National Army battalion there must also be hired or purchased sufficient fields to train the men in attack, skirmishing, etc. The money to be raised by either local subscription, or, if that does not suffice or be possible, then an Act must be passed to pay for the land out of the local rates. The land must be had. It can be had if trouble is only taken. Every village has its cricket field. Why not its drill field? Supposing war breaks out to-morrow, and the National Army is mobilised. Where are the troops to do their training that Mr. Haldane says they will have time to do? They cannot all go to Aldershot and Salisbury. As it is these places are already overcrowded, and troops during the training season fairly jostle and tumble over each other at both. Why not think about training grounds and areas now, in peace time, whilst time is available?

Moreover, if the local tax-payers have to provide training ground for their local troops they will insist on value for their money, and take an interest in the training of their local corps. Rifle ranges are a difficulty certainly, but I think that a great many more ranges could be obtained and used if the Swiss system of safety ranges was used. Since the National Army home service battalions are not going to do field practices, why should not ranges be constructed firing into tall stop butts, or into small hills, the men firing from the butts being prevented from firing wildly, or over the top of the butts, by means of the safety screens? Then there would not be the necessity for men having to travel by train for miles to a range considered safe according to present ideas, and waste half a day getting backwards and forwards. A range such as I have described, would not need to have a danger area behind it, and need not exceed 600 yards in length for a home service battalion. Foreign service battalions to fire on longer ranges, as at present existing. If, however, it is found impossible to have a range near the battalion headquarters, then men in uniform by Act of Parliament to travel free, a rebate on the rateable value of the railways giving free passage to be given by the tax collectors. Thus the cost of railway journeys would be felt by nobody.

Now the National Army cavalry must, we have seen, be trained to a much higher standard than the present Yeomanry. If this affects numbers, let it be so, and substitute corps of cyclist scouts instead.

National Army field artillery units to be armed with the old 15-pounder B.L. gun now being discarded by the Regular artillery.

As it is quite impossible to train gun layers and range takers except with the expenditure of much time and trouble, it will, I

think, be necessary to have all National Army batteries composed of semi-permanent troops, that is to say, let them be civilians at ordinary times, but pay them whatever rate will produce the requisite numbers for the necessary amount of training. Bearer companies and transport arrangements are more a case for careful organisation and registration of horses, vehicles, harness, etc., than actually training men. And all these troops should be organised into brigades of all arms; that is, a brigade might be composed of:—

4 battalions.
1 squadron.
1 brigade field artillery.
1 bearer company.
1 supply and transport column.

Complete brigades being formed of Foreign Service or Home Service units. (See Appendix B.) The British Isles to be divided up into areas of defence. To each area allot one or more field brigades according to the vulnerability of the coast from a point of view of raids. To each group of, say, 3 brigades, appoint a divisional commander and staff. Each brigade having, of course, its commander with brigade-major.

Each brigade to have every detailed arrangement made for mobilisation at a moment's notice.

Each battalion, battery, cavalry regiment, etc., to have mobilisation equipment for numbers similar to the same units of the Regular Army when at war strength. Every corps to be at once clothed in service dress, and service dress for mobilisation numbers to be stored at battalion headquarters.

No brigades to be sent for training out of their defence areas.

A training ground for each area to be provided large enough to encamp and train a brigade at least.

Schemes to be framed annually for training brigades to march rapidly, and concentrate for operations against raids or big landings.

Once in 5 years large manœuvres to be carried out in each command. For this purpose the Manœuvre Act must be made easier of application, and its powers extended so that troops can move anywhere, subject, of course, to liberal compensation being granted. The manœuvres generally to take the form, say, of half-a-dozen cruisers landing Regular troops unexpectedly, when they could and where they could, during the prescribed time, the National Army of the command to mobilise and march to repel raiders or invaders. The National Army troops taking part to be merely warned that they would be mobilised between certain dates, so that the C.O.'s could obtain the names of the men willing to turn out.

Have everything real, and, therefore, interesting to the men, and avoid make-belief schemes. In short, treat the National Army seriously. One can hardly do anything but smile at present ideas when we find the Arsenal at Woolwich providing a Volunteer corps, when, in case of war, every man in the Arsenal would be working day and night. How can they be expected to repel invaders and turn out guns, etc., at one and the same time?

Of course, before all this working arrangement has been perfected money will have had to be expended for training grounds, ranges, equipment, etc., but one cannot make bricks without straw, though

we try very hard to do so in the Regular Army. There are certain expenses that must be paid if you want to have an efficient Army. There is also a limit to the depth to which the most patriotic Englishman will put his hands into his pocket if he sees that he himself is to pay whilst others do not.

Encourage soldiering in every way, by well-cut showy uniforms, by advertising, by well-written articles in all the papers that the people read, and, if necessary, subsidise these papers if they encourage the Army: by taking its part against Socialists, and Radicals in Parliament; by honouring and upholding the officers in the performance of their duties, instead of allowing them to be belittled by ignorant people; but do not expect the Army, National or Regular, to pay for themselves whilst other lazy and unpatriotic people look on and jeer.

And lastly, encourage patriotism and a love of one's country by early teaching in every school throughout the land, that it is every man's duty to defend his country.

By being an armed nation alone we shall not, of course, become more prosperous or ready to withstand the world in arms, but if every man in the British Isles is not only a partly trained soldier, but also a true patriot in every sense of the word, then we may look forward with easy minds and consciences, and be able to hold our own in any future great struggle for national existence.

APPENDIX A.

Showing how National Army Recruiting Agents could be distributed in Yorkshire.

In Yorkshire there are:—

—	Parishes.	Manufacturing Towns.
In the East Riding	352	13
„ North Riding	554	20
„ West Riding	724	26
Add parishes partly in one Riding, partly in another	6	—
	1,636	59

Now, there are at present in Yorkshire 33 units of Auxiliary forces, as at present constituted. Each unit has a headquarters. Therefore, 49 parishes would have to be allotted to each headquarters under the new scheme, for recruiting purposes.

The male population of Yorkshire is 1,750,896. If 1 in every 5 was fit to bear arms there would be 350,179 available men in the county. Therefore, each of the 33 headquarters would have an average of 10,611 fit men to draw upon.

But each headquarters has an average of 49 parishes to be allotted. And each parish is to have a Recruiting Agent to distribute literature and posters, and to interview recruits.

Therefore, each agent would only have to visit 10,611, divided by 49, men. This only gives 216 men to each agent. This number is not excessive, as the agents need only work their district annually.

APPENDIX B.

Showing grouping of National Army units into Brigades and Divisions for the County of Yorkshire:—

Present Corps.	Present Headquarters.	Should produce	
		Foreign Service N.A. Units.	Home Service N.A. Units.
E. Riding Yeomanry	Beverley	1 Squadron ..	3 Squadrons.
Yorks (Dragoons) ...	Doncaster	1 Squadron ...	3 Squadrons.
Yorks (Hussars) ...	York	1 Squadron ...	3 Squadrons.
1st N. R. Art. Vols.	Middlesborough ...		1 Brigade Field Art.
1st E. R. Art. Vols.	Scarborough ...		
2nd E. R. „ ...	Hull ...		„ „
1st W. R. „ ...	Leeds ...		
2nd W. R. „ ...	Bradford ...		„ „
4th W. R. „ ...	Sheffield ...		
Yorks Art. Mil. ...	Scarborough ..	1 Brigade Field Art.	
3rd Bn. Yorks Regt.	Richmond ...	1 Battalion ...	
4th Bn. Yorks Regt.	Richmond ...		
3rd Bn. W. Yorks ..	York ...	1 Battalion ...	
4th Bn. W. Yorks ...	York		
3rd Bn. E. Yorks ...	Beverley	1 Battalion ...	
3rd Bn. W. Riding...	Halifax	1 Battalion ...	
3rd Yorks. L.I. ...	Pontefract	1 Battalion ...	
3rd York and Lanc.	Pontefract	1 Battalion ...	
1st V.B. Yorks ..	Northallerton ...		1 Battalion.
2nd V.B. „ ...	Scarborough ...		„
1st V.B. W. Yorks...	York		„
2nd V.B. W. Yorks...	Bradford		„
3rd V.B. W. Yorks...	Leeds		„
1st V.B. E. Yorks ...	Hull		„
2nd V.B. E. Yorks...	Beverley		„
1st V.B. W. Riding	Halifax		„
2nd V.B. W. Riding	Huddersfield ...		„
3rd V.B. W. Riding	Skipton in Craven		„
1st V.B. York L.I. ...	Wakefield		„
1st V.B. York & Lanc.	Sheffield		„
2nd V.B. York & Lanc.	Doncaster		„
1st Yorks R.E. Vols.	Sheffield	1 Field Co. ...	1 Field Co.
2nd W. Rid. R.E. Vols.	Leeds	1 Field Co. ...	1 Field Co.

So that in Yorkshire alone we might obtain:—

For the National Army Foreign Service units.	For the National Army Home Service units.
3 Squadrons.	12 Squadrons.
1 Brigade Field Artillery.	3 Brigades Field Artillery.
2 Field Company Engineers.	2 Field Company Engineers.
6 Battalions.	13 Battalions.

So that Yorkshire could furnish a complete brigade of all arms for foreign service. Also a complete division of all arms for home defence service (3 brigades to a division).

Surplus units would be united to units of neighbouring counties, thus forming complete brigades and divisions all over England,

The Yorkshire Home Service National Army units might be divided as follows:—

Divisional Headquarters.
York.

1st Brig. Headqtrs.	2nd Brig. Headqtrs.	3rd Brig. Headqtrs.
Beverley.	Halifax.	Richmond.

The 1st and 2nd Brigades to have the defence of the coast between Scarborough and Spurn Head (inclusive), allotted to them. The 3rd Brigade to have the defence of the coast between Scarborough and Tees Bay allotted to it.

Two brigades to be allotted to the southern portion of Yorkshire, as the coast there is easier for landing purposes than further north. Surplus brigades from Lancashire could back up the Yorkshire brigades, as no large raids are likely to take place in the Irish Sea.

THE RECONSTITUTION OF OUR INDIAN ARMY: ITS COMPOSITION IN THE PAST AND IN THE PRESENT.

By Lieut.-General F. H. TYRRELL (Late Indian Army).

THE Reverend G. R. Gleig, Chaplain-General to the Forces, wrote as follows in his "History of the British Empire in India," published by Messrs. John Murray in 1845, little more than a decade before the outbreak of the great Sepoy Mutiny:—

> "Be it remembered that the Romans, after embodying their legions of allies, took care to remove them to a distance from their native land; and thus held in subjection Britain, for example, by means of Spanish cohorts; Spain through the terror of British soldiery. But the English put weapons into the hands of Hindoos and Mussulmans that they may keep the yoke of their masters on the necks of their brethren; and up to the present moment at least no mischief has resulted from the experiment, either to the rulers or to the governed. How far the practice will continue to produce like results time, and time only, can determine."

Time determined the question in a very emphatic manner in less than twelve years after the above noteworthy anticipation was penned, by the mutiny of the Bengal Native Army—an event which shook the British Empire in India almost to its foundations. The author was himself an historian, and could read the lessons of history; but his warnings passed unheeded by his countrymen, and the great sepoy mutiny fell upon the English Government and the English people in India like a bolt from the blue. During a century of strenuous service the loyalty of the Indian sepoy had become an article of faith with his foreign masters; especially was the Hindustani native soldier of the Bengal Army held up to example as a paragon of all the military virtues. Old Sir Charles Napier, who knew something of soldiers and soldiering, did perceive and assert that the Bengal Native Army was on the brink of mutiny, and was for this assertion so unmercifully snubbed by Lord Dalhousie that he resigned his command in dudgeon. The British officers of the native regiments, who might have been supposed to be acquainted with the feelings of the men with whom they were in daily and hourly contact, were as fully convinced of their fidelity as were the civilians at Simla. To most of them, from their deep sleep of security there was a frightful awakening. But when the French and British adventurers in India first put arms into the hands of native auxiliaries, they

were quite conscious of the danger they were incurring. The precaution which they adopted against it was to enlist recruits of as many divers creeds and castes as were procurable, and to mingle them indiscriminately in the ranks. No doubt this was a wise precaution, and it long continued to rule our system of enlistment of natives for our military service; nor was it ever departed from in the case of the two armies of the minor Presidencies of Madras and Bombay. No sight could be more gratifying to the eyes of a cosmopolitan humanitarian than the spectacle of Hindus, Mohammedans, Christians, and Pariahs all living together cheek by jowl in the utmost peace and harmony in the Hutting Lines of a Madras native regiment, like the various animals in the cage of a "Happy Family" show. In Bombay regiments, black Jews and even Parsees were added to this human menagerie. But in some cases the force of circumstances interfered with this policy of mixture of creeds and races. The cavalry of Arcot, which the English Government of Madras took over from the Nawáb to form into regiments, were all Mussulmans, and as the Tamil and Telugu Hindus of Southern India are no horsemen, and never enlisted in the mounted branches, the Madras cavalry regiments have remained almost entirely Mussulman to this day. The authorities tried to leaven the mass by enlisting Rajputs and Mahrattas, but these could not be obtained in sufficient numbers, and never amounted to as much as one-fourth of the whole strength. The Madras Pioneers also—now the 2nd (Madras) Sapper Brigade—consisted almost entirely of native Christians and Pariahs, as Mussulmans and caste Hindus regarded spade work with disfavour. But with these exceptions our levies of native troops were all mixed, and the Madras and Bombay Armies remained composed of "mixed" regiments up to the time of the mutiny of the Bengal Army. This last and largest Army became by force of circumstances, and contrary to the intentions of its creators, a "class" Army, exclusively recruited from men of one nationality. The first native troops employed by the English in Bengal were the companies of Madras Sepoys, brought by Clive to avenge the tragedy of the Black Hole, the "miserable Kafirs of Telingana," whom the English had taught "to fight in ranks, and to perform evolutions that are truly wonderful." These were the men who fought at Plassey, and who provided the model and nucleus of the Bengal Army. The unwarlike natives of Bengal would not furnish a single recruit for the Company's military service; but the Hindustani natives of the northern provinces of India eagerly flocked to our colours, attracted by the security of the service, the high rates of pay and pension, and the prospects of plunder and prize money afforded by the assured success of our arms. In a short time the Mussulmans of Northern India, and the high-caste Hindus of Oudh and of the Agra provinces, crowded into the ranks of the Bengal regiments in such numbers that they were able to make of the Army a close borough, and to exclude from it all men of a lower caste or of a different race. And as they were the best material for soldiers then procurable, the situation was tacitly accepted by their English employers, and the Bengal Native Army became a Hindustani confederacy—a "Bhai-band" or confraternity of the military classes from the native kingdom of Oudh and our own North-West Provinces. The Mussulmans mostly filled the ranks of the cavalry, the high-caste Hindus, Brahmans, and Kshatriyas those of the infantry regiments. Though the theory of the admixture

of races was still adhered to, the practice was entirely abandoned in the native Army of Bengal. After the conquest of the Punjab, the Government, anxious to utilise the splendid material afforded by its new subjects, ordered the enlistment of Sikhs into the Bengal regiments; but the order was received with disfavour by the Hindustanis, and the new recruits were strictly boycotted, and were expelled from the ranks as soon as the Mutiny broke out.

These classes of Hindustanis, on account of their superior physique, smartness under arms, and good behaviour in quarters, were eagerly sought as recruits in both the Madras and Bombay Armies, and great numbers of them rejected by the Bengal Army standards as of insufficient height found their way into Bombay regiments, in some of which they became so numerous that in the case of the 27th and 29th Regiments of Bombay infantry they were able to join in the Mutiny of their Bengal comrades. There were conspiracies among them also in other regiments of the Bombay Army which, owing to the presence of other races and classes in the ranks, happily proved abortive. Owing chiefly to geographical conditions, the number of Hindustanis in the Madras sepoy regiments was always limited; at the most there were but twenty or thirty in a battalion. The frequent employment of Madras troops in over-sea garrisons made their service unpopular with high-caste Hindus, who lost caste by crossing the "Kálá Páni."

There was no lack of recruits for the early sepoy levies of the French and English in India, for the state of the whole country was a state of perpetual war, and the trade of a soldier was almost the only one practicable and profitable. The invasion of Nadir Shah and the rise of the Mahratta power had shattered the whole fabric of the Mogul Empire, and the succession to its provincial governorships was generally decided by a passage of arms. Yet the science of warfare was at a miserably low ebb in India. The organisation of the Mogul and Mahratta Armies was rudimentary and the discipline lax. The armament and artillery were those of the sixteenth century in Europe. The French physician Bernier, who spent some time at the splendid Court of the Emperor Aurangzib, observed of the Mogul Imperial Army, with its myriads of cavalry and long trains of artillery, that a few battalions of disciplined troops, led by a Condé or a Turenne, would soon put all these undisciplined hordes to the rout. And it was to a Frenchman that the idea first occurred of training the natives of India in the ways of European warfare. The French and English merchants who traded in India had been in the habit of hiring bands of peons or foot soldiers for the guard of their warehouses and the police of their concessions. These men were armed and equipped after their own fashion, and were without drill or organisation.

M. Dupleix, the able and ambitious Governor of Pondicherry, employed French officers to form these native levies into companies of fixed strength and with a regular organisation, uniformly clothed and paid and equipped and accoutred as French infantry. This new force was dignified by the name of Sipáhis (French Cipayes and English sepoys, or soldiers, the name till then reserved for the horsemen who formed the bulk and chief strength of the Mogul and Mahratta Armies). The new institution proved such a success that it was soon imitated by the English authorities at Fort St. George, and the number of our sepoys was continually increased until they

swelled into battalions, brigades, and finally Armies. But during the wars of Trichinopoly and the conquest of Bengal the company was the only unit of organisation. Each company had a flag, a drum, a European sergeant, and a native captain or jamadár (from *jamá'at*,[1] the Arabic word for company), but this title became afterwards relegated to the rank of lieutenant, and the captain was designated subadár, the same title as that borne by the Mogul Viceroys, Governors of the Subas or great provinces into which the Empire of Delhi was divided. The term may perhaps have been first applied to the general of sepoys, a native officer who commanded the whole body of sepoys in the field in our early wars in India. A curious parallel may be observed in the military titles of the Persian Regular Army at the present day, where the captain of a company is called the "Sultan."

The independent companies of sepoys were first formed into battalions in Madras in 1763. The regiment now designated the 61st Pioneers, long known as the 1st Madras native Infantry, is the *doyen* of the Indian Army. It bore the name of Shaikh Mohi-ud-Din, probably the name of its first commandant, for each battalion of sepoys had at first a native commander, styled the "Comidan" (commandant), while a European officer with the rank of captain performed the duties of an adjutant. It may easily be imagined that the captain practically commanded the battalion; the native commandant became a mere figurehead, and was soon suppressed altogether.

The absence of military talent among the natives of India was very remarkable. Though the country was in a continual state of warfare, very few of the chiefs or rulers displayed the talents or the qualities necessary to a leader in war. Such exceptions as Haidar Ali, of Mysore, Ibrahim Khán Gardi, Morari Rao, and Yúnús Khán only serve to emphasise the general incompetence. It was soon perceived that the fighting efficiency of the sepoys was in direct proportion to the number of Europeans employed to lead them, and the number of their British officers was accordingly continuously augmented. The subadárs and jemadárs were relegated to the position and the duties of subalterns, and the companies were commanded by British officers. Two British non-commissioned officers—a sergeant-major and a quartermaster-sergeant—remained attached to each native battalion up to the time of the Mutiny and the reorganisation which followed upon it.

But if the Indians were found to be worthless as officers, they made excellent soldiers. Though the sepoys of the Coast Army (as the Madras Army was at first commonly called) were recruited mainly from races despised as unwarlike by their Mussulman masters, they soon developed into veteran soldiers in the stern school of incessant warfare in which they received their training. The gates of the Temple of Janus were never shut in India, and if there was a temporary truce with the Mysorean or the Mahratta, the taxes had to be collected by force of arms from refractory Polygars, or the raids of the wandering Pindaris repelled and avenged. The sepoy seldom remained for twelve consecutive months in the same cantonments. He was nursed and educated in war, and often ended his days in an

[1]The word *jamá'at* was used to designate a company in the Turkish Corps of Janissaries.

invalid or veteran battalion. Under the British flag he crossed the seas to war in Java and in the Mauritius. Bombay sepoys accompanied Sir David Baird's expedition to Egypt, and marched from the shores of the Red Sea to the banks of the Nile. Under the leadership of British officers they were always ready to face any foe. The battle of San Thomé, where the single French battalion led by the Swiss de Paradis, had scattered the whole Army of the Nawáb of Arcot, had conclusively proved the superiority of the Europeans to the Asiatic in the shock of steel. And in the early wars of French and English for the mastery in India, European troops were always opposed to Europeans in the field, and sepoys to sepoys. There were legends in the Coast Army of its sepoy battalions having successfully crossed bayonets with the Frenchmen; but they seem to rest on no solid foundation of fact. When Colonel Braithwaite's sepoys had long and stoutly resisted all the efforts of the Army of Tippoo Sahib to break their ranks, they at once gave way when the French battalion in the Sultan's service advanced upon them with fixed bayonets. And in the field our brigades were always formed of one British and two native battalions, for it was found that the sepoys fought better for the example, and in the company of European troops. But even when unsupported by this example and company they overthrew enemies not only more numerous but braver and more warlike than themselves. It was the custom of the native princes of India to hire as mercenaries Persians, Arabs, and Afghans, who were superior as fighting men to their own subjects. Our sepoys often came off victorious in desperate hand-to-hand encounters with these mercenaries, as when two Madras battalions and a troop of cavalry defeated a superior force of Arabs at Sitabaldi after a long and bloody struggle, and a single Bombay battalion successfully defended the open village of Korygaum against a body of Arabs backed up by the Peshwa's whole Army.

On occasions they showed a fine military spirit which might almost be called chivalrous, as when the grenadier sepoys of Bengal regiments in Sir Hector Monro's Army, sentenced to be executed for the crime of mutiny by being blown from guns, requested that they might be blown from the guns on the right of the battery, it being their privilege as grenadiers to take the right of the line. For though the loyalty of the sepoy to his officers and his colours eventually became proverbial, mutinies were not infrequent among our native troops in the early days of our Indian Army, caused by delays in the payment of arrears, shortage of supplies, or the intrigues of the native rulers, who were our ostensible allies and secret enemies; but these mutinies were easily appeased by the removal of their causes, and the fidelity of the sepoy to the employer whose salt he ate soon came to be regarded as unalterable.

When the English officers of the Bengal Army formed their cabal to resist the retrenchments ordained by Clive, when those of the Madras Army actually had recourse to arms to oppose the petty tyranny of an obnoxious Governor, the sepoys in both instances plainly showed their intentions of remaining loyal to the Government which employed them. Some mutinies were caused in the Bengal Army by regiments being detailed for service beyond seas; notably at Barrackpore in 1827, when the mutiny was put down with a high hand, the recalcitrant troops being mown down by the European

artillery. But in the whole history of the Honourable East India Company,s native Army for a hundred years there was but one instance of a mutiny due to political causes; this was the mutiny of Vellore in 1806. The captive sons of Tippu Sultan had been interned there after his death and the fall of his kingdom, and there is no doubt but that their intrigues were the real cause of the mutiny, of which the ostensible reason was the issue of a new pattern cap to the Madras troops in the garrison.

But the objectionable head-dress of European type was, like the greased cartridge of fifty years later, only the spark that fired the mine which had already been laid. The salutary severity with which those mutinies were quelled for long prevented any recurrence of them.

The unfortunate experiment in military headgear at Vellore was only an expression of the continual desire of the English military authorities in India to assimilate the external appearance of the sepoys to that of British troops. The first raised companies were uniformly dressed in white jackets and short breeches, with the legs bare and the feet shod with sandals. The head-dress was a cloth turban made up on a frame and with a brass boss on the crown which served for an ornament and a protection from a sabre cut. The cockade, which was then deemed an indispensable adjunct to a military head-dress, was of brass, as the sepoy would not consent to wear any leather upon his head. Indeed, at first some difficulty was made about wearing cross-belts and leather accoutrements, but this was happily surmounted. French and British sepoys being alike dressed in white very nearly cost Clive his life or liberty in a night attack, he mistaking the French sepoys for his own men. The first time the English sepoys wore red coats in the field was at the battle of Condore, on which occasion the French leaders mistook them for British soldiers, and made their dispositions accordingly. And the process of Europeanising their dress and appearance was persistently pursued; the kamarband was abolished, the short breeches and sandals were replaced by trousers and boots; a shako succeeded to the turban in the Bengal and Bombay Armies, but minus the leather peak in front, as the sepoy still objected to anything leathern in his head-dress. The Vellore incident probably prevented the introduction of the shako into the Madras Army, but the turban was narrowed and heightened and varnished black, till it presented a colourable imitation of a European military cap. Sir William Russell observed in 1857 that a Bengal sepoy, viewed from the back, might well be taken for a British soldier of the line. After a hundred years of endeavour, the Anglo-Indian military authorities had just finally succeeded in making the sepoy externally a faithful imitation of the outward garb and appearance of his European comrade, when he went and mutinied, and caused all their thought and labour to be thrown away, and their long-cherished and conservative ideals to give way to entirely new and revolutionary ones.

The general tendency of our military policy was always to Europeanise our Asiatic soldiery; and this policy, taking no account of the mental and moral differences between Europeans and Asiatics, tended rather to impair than to increase the efficiency of our Indian troops. The regiments of Regular cavalry in the three Presidency Armies, trained and exercised in European and unfamiliar methods

of equitation and swordsmanship, proved inferior to the Irregular regiments of cavalry which were first incorporated in our military forces about the beginning of the nineteenth century, in the shape of regiments of the force subsequently known as the Hyderabad Contingent, and the famous partisan corps of Colonel James Skinner, which still wears its original yellow uniform as the 1st Prince of Wales's Own Regiment of Indian Cavalry. These horsemen were entertained on the Silahdár system, which prevailed in the Mogul and Mahratta Armies; they received a lump sum from the Government, and provided their own horses, forage, clothing, and equipment; they rode in their own fashion, and were armed with the lances and scimitars which were their natural weapons, and wore the turbans, kamarbands, and longskirted coats, which were their national dress. Their ranks were kept filled by the best fighting men of Northern India, to whom the monotonous duties and minute regulations of our Regular regiments were irritating and unmeaning. Men of wealth and position entered them as native officers, and it often happened that a Risaldar (squadron commander) owned all the horses in his squadron, their riders being his clients and dependents. Each regiment had three British officers, who were picked men taken from the Regular regiments; a commandant, a second-in-command, and an adjutant. The commandant, like the colonels of Napoleon's Army, was absolute in his regiment, and settled the details of interior economy, which differed in all the regiments. These regiments were cheaper to maintain than those of the Regular cavalry, and were, at the same time, more efficient. More instances of misconduct in the field occurred among the Regular cavalry regiments that in any other branch of our sepoy army, and it is noteworthy that while all regiments of the Regular Bengal Light Cavalry proved unfaithful in 1857, and most of them led the mutinies at the stations where they were quartered, many of the Irregular regiments remained faithful, though they were composed of Hindustani Mussulmans of the same creed and nationality as the men who mutinied in the Regular regiments. Their British officers had more authority, and, therefore, more influence over them; their native officers were men of higher breeding, with more intelligence and honourable feeling. Half of the total number of the Bengal Irregular cavalry regiments remained loyal, and still figure in our Indian Army List, while of the ten regiments of Bengal Light Cavalry, every one either mutinied or was disbanded for proved disaffection.

(To be Continued).

THE EDUCATION OF THE SOLDIER.

By Colonel H. C. C. D. SIMPSON, C.M.G., R.A.

THE instruction of the soldier may be divided into four headings:—

1. Military or professional training.
2. Technical training.
3. Moral training.
4. Literary education.

1, 2, and 3 have been a great deal before the public lately; 4, however, is scarcely ever alluded to, although on his return to civil life, the soldier is more indebted to its acquirement, possibly, than to that of either 1 or 2. Few, indeed, outside the Regular Army, fully realise what is being done for the serving soldier by means of Army Schools and Garrison Libraries, both from a moral as well as from a literary point of view. It is from this latter aspect, that I propose to indicate in this Journal, which is widely read nowadays outside the Regular Army, the arrangements which are being made to ensure every non-commissioned officer and soldier receiving a sound, practical education, should he be disposed to accept it. Of course, the old days, when a recruit who joined the Army could rarely sign his name, have passed away, with the general advance of education in this country. But the amount of "larning," of which the average recruit is possessed, is very sadly limited, even in these days of Board Schools and "Character" recruits. Army Schools are established, mainly, for the purpose of affording to non-commissioned officers and men a sound and useful education.

Thus every recruit, soon after joining the Army, is to attend school for examination to ascertain his educational attainments under the following instructions:—

A. A soldier who can read print and manuscript, write legibly and correctly from dictation, from a Standard VI. reading book, and work the four compound rules of arithmetic.

B. A soldier who can only read print and easy manuscript, write dictation from an elementary reader fairly, and work the four simple rules of arithmetic.

C. A soldier who can only read print, and write from dictation from Standard I. Reader, a sentence consisting of about twelve monosyllabic words.

D. A soldier who is practically illiterate.

At all stations where Army Schools are established every non-commissioned officer will attend school regularly until he obtains a 2nd Class certificate of education, and every enlisted boy (excluding trumpeters, drummers, etc., of the permanent staff of Militia), until

he attains the age of 18 or until he obtains a 1st Class certificate; except that a lance-corporal in possession of a 3rd Class certificate may be excused for one month by his C.O., to enable him to prepare for his professional examination for promotion. Non-commissioned officers of the Armourer Section of the Army Ordnance Corps, enlisted on and after 1st January, 1906, will attend school until they obtain a 3rd Class certificate of education.

In addition, commanding officers (C.O.'s) and company officers will impress upon their men the advantage of attending school, both for their own improvement and with a view to qualifying for promotion. A soldier, whose name has been placed on the school books, should attend regularly and continuously for three months, unless his C.O. authorises his withdrawal, or until he obtains a higher certificate of education.

C.O.'s will afford men, whose names are on the school books, every facility for attending regularly, by arranging, if possible, for their temporary relief, during any of the school sessions, from any duty, and, when practicable, excusing them from all duty, on condition that they then attend at least two sessions a day.

C.O.'s may order enlisted boys with more than eighteen months' service, who have not obtained a 2nd Class certificate of education, to attend school twice a day.

Examination of Soldiers for Certificates of Education.

Certificates of education are of three classes, viz., 1st, 2nd, and 3rd. The following table exhibits the scope of examination for the several classes:—

Class.	Subject.	Extent.
1st. ...	Arithmetic ...	The whole subject (except present worth and discount, stocks and cube root), prominence being given to problems.
	Composition ...	The substance of a passage of English prose, to be written by the candidate in simple language.
	Map Reading...	A knowledge of the four cardinal points and of the four intermediate points of the compass, and how to ascertain them: (*a*) by the compass; (*b*) by the sun; (*c*) by the pole—star. A knowledge of plain scales, sufficient to enable men to measure distances on a map. Ability to draw (in pencil) the conventional lines used in field sketching. A knowledge of the meaning of contour lines or of different coloured shadings on a map.
	English History ...	(*a*) From the year 1688. (*b*) A campaign or biography.
	Geography ...	General knowledge of the positions and sizes of the continents, oceans and leading countries of the world. Detailed knowledge of the British Empire. Sufficient knowledge of the movement of the earth to understand the variations in time, the seasons and the climates.

Examination of Soldiers for Certificates of Education—*continued.*

Class.	Subject.	Extent.
2nd ...	Arithmetic ...	Reduction, simple practice and proportion, vulgar and decimal fractions, military percentages, averages and proportional parts, simple superficial and cube measure, and regimental accounts (to be confined to making up the pay and mess book of three soldiers, and the messing book).
	Composition ...	To describe in simple language any common object or any incident which the candidates have seen, or any place which they have visited.
	Writing from Dictation ...	Extracts from Regimental.—Handwriting. Command or Army Orders.—Spelling.
3rd ...	Arithmetic ...	Compound rules and reduction of money, reduction of avoirdupois weight, and lineal measure, a simple messing account, simple addition and subtraction of vulgar fractions in concrete form, L.C.D. not to exceed 20.
	Composition ...	A simple letter of not less than 70 words to a parent or friend.
	Writing from Dictation ...	Extracts from Regimental.—Handwriting. Orders.—Spelling.
	Optional Subjects for 1st class certificates.	

The examination for a 1st Class certificate of education will be carried out in accordance with the following rules:—

A. The five subjects specified may be taken up at one examination.

(If the candidate fails in one subject only, but obtains the necessary aggregate, he will be re-examined in that one subject only.)

The five subjects may, however, be taken up in the following two groups, but both groups must be obtained within a period of five years:—

B. Group 1.—Arithmetic, map reading, and geography.

C. Group 2.—English history and composition.

(All the subjects in either Group B or C must be taken up at one examination.)

List of books recommended for study of above:—Hamblin Smith's "Arithmetic"; Arnold Foster's "History of England"; Gill's "Geography"; the "Sphere Atlas"; and "Notes on Elementary Map Reading," etc.

In the examination for 1st Class certificates, the following is the scope of some of the subjects:—

1. In English history, eight of the questions will be devoted to the events of the period since the accession of William III., and three questions to the campaign or biography.

Before an enlisted boy is admitted to a 2nd Class certificate examination, the superintending officer should satisfy himself that the boy is able to read with fair fluency.

2. In geography, importance will be attached to a knowledge of the relation between the physical features of a country and its military, political, and commercial geography.

3. In composition, the passage of English prose will be placed in the hands of the candidate for ten minutes, after which they will be required to reproduce the substance of it in their own words from memory.

A soldier may present himself for examination, for any certificate if recommended by the schoolmaster.

A candidate who fails in one or more subjects, in the examination for 2nd and 3rd Class certificates, or in Group 1 or 2, for a 1st Class certificate, will be required to pass in all subjects at a future examination.

Soldiers in possession of 1st Class certificates may be examined at their option in European or Oriental modern languages, or in Pitman's shorthand, or in typewriting, at any of the examinations for 1st Class Army certificates.

When a candidate passes a successful examination in any optional subject, the fact will be recorded on his certificate by his C.O., who will date and sign the entry. It will also be recorded in A.B. 13.

A warrant or non-commissioned officer, or man who is in possession of a 2nd Class certificate, and can produce:—

a. A "Leaving" certificate on a form approved by the Army Council;

b. A "Qualifying" certificate issued under the authority of the Army Council; or,

c. A War Office certificate that he would be exempted by the Army Council from the necessity of obtaining a "Leaving" or "Qualifying" certificate as a candidate for a commission in the Regular forces;

will be exempted from the necessity of obtaining a 1st Class certificate of education.

Warrant and non-commissioned officers and men will also be permitted to be examined in any one, or more, of the following sub-heads, at the examinations held under the King's Regulations, Appendix VII., for the promotion of officers:—

d (i.) Military engineering, tactics, and topography.
d (ii.) Military Law.
d (iii.) Administration, organisation, and equipment.
d (iv.) Military history.

The scope of the examination will be as laid down for the promotion of lieutenants to captains.

Examinations for 1st Class certificates of education are held twice a year, and for 2nd and 3rd Class certificates four times a year.

To enable candidates for 1st Class certificates to study for the same, at stations where Army Schools are established, books are supplied in the ordinary course to schools.

In the use of the typewriter the Remington Typewriter Company give instructions to candidates in the use of the typewriter at about 30 military stations in Great Britain and Ireland.

Prizes are also offered for the most faithful copies of the Bold Series of Vere Foster's writing books (5 Nos.) to soldiers over 18 years of age, who have been not less than 3 months on the school books in the year ending 30th June, and who are working for a 1st or 2nd Class certificate of education, in the United Kingdom.

As regards the 1st Class certificate of education, to a certain class of non-commissioned officers, viz., those of the pay and quartermaster's branches of combatant units, and all non-commissioned officers of Departmental Corps, the syllabus might include with advantage, as, at any rate, alternate subjects, a thorough knowledge of account-keeping and an elementary knowledge of business methods, the recent decision to give officers some knowledge of business methods and economics, being thus extended to some limited degree to non-commissioned officers. Some of the books in Gibbins' Elementary Commercial Series, should be consequently included in the list of books supplied at Army Schools under certain conditions, for the purpose of these examinations.

Such is the standard of education which soldiers can attain, if they choose to apply themselves to this purpose. It enables them to hold many well-paid employments in the service, even to securing a commission, and is of invaluable assistance to them on returning to civil life. Now, how is this instruction imparted?

The efficiency and administration of Army Schools is one of the duties of general officers commanding, and is carried out through the medium of inspectors of Army Schools. There are about 30 of these inspectors in the Army, in charge of the schools within certain areas. About one-third of their number rank as captains, and the remainder as lieutenants.

They visit, inspect, and examine all schools and candidates for certificates of education; for the appointments of schoolmaster on probation, and acting schoolmaster, and perform other duties of a cognate character. Under no circumstances are they to be charged with matters connected with the pay, clothing, etc., of schoolmasters, or with any responsibility for school buildings or school materials.

Schools are under the command of officers specially appointed by G.O.C.'s, who will, as far as possible, deal with all points of school administration themselves, referring to the inspector only those matters on which the decision of the G.O.C. is required; they and O.C.'s units (or a field officer from each unit) visit the schools frequently.

O.C.'s schools will keep the inspectors informed of all changes of teachers, and of the action taken and of the decision arrived at, with regard to any irregularities or other matters relating to the Army Schools within their commands.

It is laid down in the Regulations that "the position and experience of an inspector afford exceptional opportunities for his aiding and encouraging the efforts of teachers, and for informing them from time to time of any plans and methods which may have been seen in beneficial use in other schools. It is his duty to criticise and examine, but these duties will be ill-performed if he does not regard himself, and succeed in winning teachers to regard him, rather as an adviser and helper interested in furthering the best objects of education, than as a disinterested critic and detached examiner: his attitude towards the schools, therefore, should be strongly sympathetic rather than severely critical."

Inspectors, while insisting on the appointed curriculum and system being carried out, should encourage individuality and initiative on the part of teachers, and allow considerable latitude in method, which largely depends on personal temperament.

The appointment of schoolmaster is made from the War Office on the result of examination. At present, there are several vacancies in the corps of Army Schoolmasters, and the Army Council is applying for candidates who are either certificated trained civilian schoolmasters or students of training colleges, fulfilling certain conditions and not exceeding 24 years of age.

Schoolmasters have to make themselves acquainted with the Army School Regulations, Standing Orders, and all other orders and directions issued relating to schools. They are responsible to the C.O. of the school for the trustworthiness of all registers and records kept by them; for the accurate compilation and punctual submission of the reports and returns rendered by them; and for the proper custody of all school materials, books, and documents, of whatever kind committed to their charge.

The stay of a schoolmaster at a station is about five years. They are appointed to garrisons (except in India) direct from headquarters. In preparing candidates for examinations teachers are reminded that it is not by studying past questions, or by trying to forecast the kind of questions likely to be set, but by teaching the subject with good sense and thoroughness, that the requirements of the regulations will be best fulfilled, and the truest educational success achieved.

Selected candidates for the position of Army Schoolmaster will be appointed schoolmasters on probation. Civilians, if fully qualified, may be enlisted for the corps of Army schoolmasters for the period of 12 years. They may be enlisted on appointment, or so soon thereafter as they may apply, but must be enlisted previous to confirmation. Soldiers will continue to serve on their Army engagement.

Schoolmasters on probation, who are reported at any time for either misconduct, incompetency, or want of application to their duties, are liable to be discharged or dismissed.

At the end of their probationary period they will be required to pass an examination. Upon the result of this examination, considered with the periodical reports upon them by the C.O. and inspector under whom they have served, will rest the decision as to their being confirmed in their appointments. Failure at this examination will entail discharge. Their places in the examination will determine their seniority in the service.

Schoolmasters on probation, who are reported qualified to the War Office, and who are finally approved, will, if civilians, be confirmed in their appointments as Army schoolmasters. If soldiers, they will be transferred to the corps of Army schoolmasters and continue to serve on their Army engagements, and if enlisted for short service, they will be required to extend their service to 12 years on being transferred to the corps.

Schoolmasters on probation, who have not been enlisted, will be required to give three months' notice before resigning their appointments. They will not be eligible for promotion to warrant rank until they have completed eight years' service, reckoned from date of confirmation.

Non-commissioned officer candidates for the appointment of acting schoolmaster and soldier assistants, undergo a special course of training as follows:—

1. By being attached to a garrison school, selected by the inspector, for a period of four months.

Applicants must be in possession of a 1st Class certificate, and will be required to pass an examination by the inspector at the conclusion of the course.

2. By attending a special course—artillery at Woolwich, cavalry and infantry at Aldershot.

Candidates must hold at least a 2nd Class certificate, and preferably a 1st Class. They must not have more than 17 years' service, including boys' service.

In addition to the examination for 1st Class certificates of education, a candidate must also pass a satisfactory test in the following further subjects:—

FURTHER SUBJECTS.

Reading.
Regimental and other accounts.
Grammar and composition. Work of Standard VII. and previous standards.
Spelling (word building).
Writing on blackboard.
School management.
Physical training.

The examination in school management will include:—

1. Practical teaching in the presence of an inspector in reading, writing, and arithmetic, regimental and other accounts, grammar, English history, and geography (especially of the British Empire).
2. Capacity to answer a paper of questions on school economy, with special reference to the Army School and other regulations and instructions affecting Army Schools, and the modes of instruction in the different subjects, and in the preparation of school returns and indents.

The pay of the instructional staff is as follows:—

Inspectors.—On first appointment, 10s. 6d. per day, increasing by increments of 1s. 6d. every 5 years to 16s. 6d. at the end of 20 years.

Schoolmasters on probation 2s. 6d. per day, on confirmation of appointment 4s., and increasing by 6d. a day for every 4 years' service after appointment to maximum of 5s.

Extra duty pay of *Acting Schoolmasters* varies according to numbers attending school, from 6d. a day upwards, to 1s. 6d. per day.

These remarks, for which the Official Regulations have been so largely consulted, will, it is hoped, give briefly a general idea to his relations and others of what is being done to ensure a sound education being imparted to the soldier, during the term of his colour service. This instruction is not, moreover, merely limited to non-commissioned officers and men, but extended to their children, though it is outside the province of these remarks to give any details on this part of the subject, especially as it is now under the consideration of a War Office Committee

THE BATTLE OFF TSU-SHIMA.[1]

IN MEMORY OF "THE SUVÓROFF."

A PERPETUAL TRIBUTE TO FALLEN HEROES.

Translated from the Russian of Commander Vladimir Semenoff, Imperial Russian Navy,

[With the Author's permission],

By Lieut.-Colonel W. E. GOWAN, Retired List, Indian Army.

CHAPTER I.

A FRESH breeze is moaning sadly through the shrouds, and is angrily driving before it the low-lying scud. The troubled billows of the Yellow Sea are breaking against the sides of the battle-ship. A fine, cold rain is blinding the eyes, and the rawness of the air is penetrating to one's very bones. Nevertheless, a group of officers is still collected on the after-bridge and every one of them is trying to follow the silhouettes of the transports which are slowly becoming hidden behind the mesh-like drops of the drizzling rain.

On the masts and yard-arms of the vanishing vessels signals are still floating. Thus are the companions of our long and difficult voyage sending to us their last farewells, their final wishes for our success.

Why is it that at sea this brotherly compliment, expressed by the combination of various flags, should so move the soul, should appeal to her more deeply than all other salutations, or shouts, or even than the sounds of music? Why is it that, up to the last moment of the flying of such a signal, all should gaze at it, in silence and with concentrated vision, as though it displayed living words and was not a mere collection of various coloured pieces of bunting fluttering in the wind or soaked by the drenching rain? And when the signal is at length lowered, and the quondam beholders turn away, why does each one then go off to his own work, still wrapt in silence? It is because as if the last silent handshake had been given, and the final leave-taking is over.

"Well, how about the weather?" exclaims some one, as if wishing to break the silence.

"The weather is first rate!" retorts another in a jocular tone, "and if it will only remain so as far as Vladi-vostók, then praise be to God! No sort of general engagement will in that case take place!"

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[1] St. Petersburg, 1906. M. O. Wolff, Vasili Ostroff [Basil Island], Line 16, Nos. 5—7.

Once again have we hoisted signals, for the Squadron, having sent off some of the transports to Shanghai, has to be reformed into a fresh and *final* arrangement for the normal course.

Ahead, in the form of a wedge, steamed the scouting division, consisting of three vessels, viz., the "Svietlána," "Almáz," and "Urál." In their wake followed the Squadron in two columns: the starboard column, consisting of the First and Second Battle-ship Divisions, that is to say, of eight vessels:—

1st Division.	*2nd Division.*
"(Kniáz) Suvóroff"	"Osliába"
"(Imperátor) Alexander III."	"Sissói Veliki."
"Borodino"	"Navarin"
"Orél."	"(Admirál) Nakhimoff."

the port column comprising the Third Battle-ship Division, and the Cruiser Division, or another group of eight vessels:—

Third Battle-ship Division.	*Cruiser Division.*
"(Imperátor) Nicholas I."	"Olég."
"(Admirál) Seniávin"	"Aurora."
"(Generál-Admirál) Apraxin"	"Dimitri Donskoi."
"(Admirál) Ushakoff"[1]	"Vladimir Monomakh."

On either flank of the Squadron, and in line with the leading ship of each column, the light cruisers "Jemchúg" and "Izumrúd," each accompanied by two torpedo-boats, maintained their respective positions, or scouted to starboard and port, as occasion required.

Astern, but slightly projecting into the interval between the two columns, steamed those transports, the arrival of which at Vladi-vostók *was considered to be indispensable*,[2] viz., the "Anadir," "Irtish," "Korea," and "Kamtchátka."[3] There were also, always ready to render assistance, the tug steamers "Swir" and "Russ."[4] A second group of five torpedo-boats was attached to the Cruiser Division, with the object of assisting that Division in protecting the transports from any attack by the enemy during the battle. Lastly, astern of all followed the hospital-ships, "Orél" and "Kostróma."

Such a disposition of the vessels made it practicable, in case of the enemy's appearance, to rapidly reform and take up a battle order without any complicated manœuvring (and this means also without the risk of confusion). Thus the scouting vessels, after turning to the side *away* from the enemy, would proceed to unite with the Cruiser Division, which would convoy the transports from the battle area,

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[1] Elsewhere described as a coast-defence vessel.—W.E.G.

[2] Bitter irony; we were striving to make our way to our own *base*, having received an order to carry everything with us, as far as possible, so as not to overburden *that base* with demands for war stores and food supplies, since the railway was with difficulty supplying the Army, and we could not, therefore, reckon upon it for anything.—*Author.*

[3] The "Anadir" and "Irtish" appear to have been "ammunition ships," the "Kamtchátka" a "repair vessel."—W.E.G.

[4] Probably also water-tank steamers.—W.E.G.

and protect them from the enemy's cruisers, while the First and Second Battle-ship Divisions, by increasing their speed and turning "together"[1] to port, would come out at the head of the Third Battle-ship Division, and resume their old course. As a result all three Divisions would be in one column in line ahead formation. Moreover, our battle-line, thus formed, would consist of twelve armour plated vessels. The "Jemchúg" and "Izumrúd," by manœuvring as circumstances might suggest, and by taking advantage of their high rate of speed, would, with the torpedo-boats attached to them, take up a position either ahead or astern of the vessels of the main body (or of the flanking vessels), but on the side removed from the enemy, so as to be beyond the limit of his fire; their duty being not to take part in the battle but to beat off any attempt made by the enemy's torpedo-boats.

Such was the general plan of the preparations for the battle, as it was worked out beforehand, and was made known to every officer of the Squadron. Moreover, certain special revisions, that might be found necessary, depending on the particular direction in which the enemy might be discovered, the guiding rules for the working of the guns, the methods to be adopted for the succour of vessels in distress, the transfer of the Admiral's pennant from one vessel to another, the succession to the supreme command, and so forth, were explained in special orders of the Admiral-in-Chief, but these are details which would afford but little interest to readers who are unacquainted with naval affairs.

The day passed quietly. Towards evening a breakdown occurred in the engines of the "Seniávin." So the whole of that night the speed of the entire squadron had to be reduced to a minimum. The ward room officers of the "Suvóroff" were angry, and abused the "self-sinkers" (as they nick-named the vessels of Rear-Admiral Nebogátoff's Division). Although this exasperation was, of course, perfectly natural, still, it was not altogether just; for our own vessels were only a little better than theirs. Our protracted voyage had revealed a long and sad record of defects in our boilers and engines, and these had entailed excessive labours amounting to martyrdom, on

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[1] "Together" has a literal signification: for in this manœuvre all the vessels turn simultaneously to the same side and at the same angle, so as to reach a change of position, which shall be parallel with that of their former course. The simultaneous forward movement will depend on the sine of the angle described in turning. After this, by turning within a given time, and again "together" at the same angle, but in the reverse direction, the vessels will once more be in line ahead formation, but at a given distance, either to starboard or port of their former course.

"Together" is then in contradistinction to the term "in succession," when each vessel turns, only after reaching the point of the turning of the vessel preceding it, and thereon follows in its wake.—*Author.*

For a clearer elucidation of the various evolutions performed by both the contending fleets, reference is invited to the diagrams attached to the account of this battle inserted on pages 1128—1148 of No. 343, Vol. L of this JOURNAL, published on 15th September, 1906.—W.E.G.

the part of our artificers,[1] who, with insufficient appliances and under unusual difficulties, had to undertake ceaseless repairs to material that should have been renewed.[2]

At night, as soon as we had begun to experience freshness in the atmosphere after six months in the tropics, we slept excellently, although, of course, "by watches," *i.e.*, during half the night one-half of the officers and crew remained at the guns, and for the rest of the night the other half.

On the 13th (25th) May the clouds somewhat dispersed, and the sun every now and then appeared, but over the sea a thick fog still rested, notwithstanding that a fairly stiff breeze was blowing from the S.W.

Proposing to take advantage of all the daylight available in the channel that lies close to the Japanese coast-line, where, in all probability, torpedo attacks might be the more certainly expected, the Admiral fixed upon noon of 14th (26th) May, as the time and date for the Squadron to be midway in the passage of the Straits of Tsu-shima.

According to this calculation, we had still about four hours to spare, and these were to be employed "in the last instructional manœuvres."

Once more, and for the *last* time, were we to be reminded of the old truth, that a "Squadron" is created by long years of practical seamanship (or, of navigation that is not learnt, either when lying at anchor or when laid up in reserve), during peace time, and that if such a force be hurriedly composed of various types of vessels, and if the instruction of the *personnel* of such a fleet in battle tactics has only been begun on the voyage (be it long or be it short) to the theatre of war-operations, then it is no Squadron, but a mere fortuitous collection of war-ships.

The evolutions necessary to bring the Fleet into the proposed battle formation, which was of a simple kind, were fairly well executed, but no more than that. They were especially impaired by the vessels of the Third Division, and for this inadequate result could the Admiral-in-Chief and his subordinate commanders be blamed?

Whilst taking part in the practical manœuvres off the island of Madagascar, and later on in the aimless cruising[3] along the coast-line of Annam, the crews of the vessels of our several divisions, although, to a certain extent, instructed in working together, and although, in a measure, acquainted with each other, could not be said to be parts of one whole. Indeed, the Third Division had only joined the main body a fortnight before the time of which I speak, and that for the very purpose of carrying out a conjoint passage of the

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[1] A perusal of the following work will show clearly the real state of almost every one of the vessels under Admiral Rodjestvenski's command:—"From Libau to Tsu-shima," by the late Eugéne S. Politovsky, Engineer-in-Chief to the Squadron. Translated by Major F. R. Godfrey, R.M.L.I. London: John Murray, 1906.—W.E.G.

[2] This I take to be the meaning of some highly idiomatic phraseology, which, literally rendered, runs thus:—"Who had to squeeze oil out of a flint, and to sew over the patches on a coat to make it look new."—W.E.G.

[3] Literally "roving."—W.E.G.

Straits of Tsu-shima, and of taking part in a battle somewhere in that neighbourhood.

For any combined instructional manœuvres, there had really been no time.

Admiral Togo, on the other hand, had commanded a permanent Squadron for eight years without once striking his flag. Moreover, five of his Vice-Admirals and seven of his Rear-Admirals, who took part in the battle of Tsu-shima, either as Commanders of Divisions, or as Flag Officers, and also the Captains of his vessels, were all either his comrades or his pupils, and had received their naval education under his superintendence.

At such a moment we could but regret our own want of preparedness, and that is all.

For the impending battle, therefore, all that was left for us to do was to make the best use of what material we had to hand.

Our Admiral presupposed (and certainly events completely justified his forecast) that for any decisive engagement Togo would appear at the head of his twelve best armoured ships. Against these Rodjestvenski could put in array also twelve battle-ships, and these would be under his personal command. In a combat between these two forces, then, would evidently lie the centre of gravity, so to speak, of the contest. There was, however, a material difference between the vessels of the Japanese main body and our own. First as to year of construction. The oldest of Togo's twelve armoured ships was the "Fuji," and yet it was of more recent construction, by two years, than the "Sissói Veliki," which, amongst our twelve battle-ships, stood sixth in order of age. In point of speed the enemy's vessels had a superiority over ours in the ratio of $1\frac{1}{2}$ to 1 knots per hour. As to the most important advantage which the Japanese vessels had over our own, that of more modern armament, we had as yet no suspicion.

The 13th (25th) May, which was taken up with the manœuvring already referred to, passed away very uneventfully.

I do not know how it was on board the other vessels of our Squadron, but on the "Suvóroff" the bearing of every one was brisk and good. A certain air of preoccupation was perceptible, but there was no sign of despondency. The officers, perhaps, went in and out amongst the crew and visited their several stations more frequently than usual, but this was for the purpose of explaining what might have to be done. Whilst so engaged they would chat with, and even chaff, their more intimate messmates.

Some of the men, as though suddenly bethinking themselves, would hand over for safe keeping in the treasure chest some article of precious memory or some just-finished letter to a friend or relative at home.

But the same sort of thing was done when we left the Baltic at the beginning of our voyage.

It was when I was passing by on one such occasion that Lieutenant Vladimirski, a senior gunner, stopped me for the purpose of pointing to a sailor who was busily engaged in diving into a kit bag.

"And so you have already packed?" Taken by surprise, the man suddenly burst out laughing, and replied:

"Do you think that I was packing?"

"Yes, of course!" was the ejaculation, as there now joined in the conversation Lieutenant Bogdánoff, a senior torpedo officer, and veteran in the last war, who had been wounded in the taking of the

Taku forts; and he added: "Go to-morrow or to-night to the office and have your account made up!"

But on such a man, as the one addressed, it would seem that no sort of surroundings would produce any impression whatever.

"And have you no presentiment, seeing that you have already been in action?" inquired a young midshipman, who, as he came up, was holding something in his pocket (it was evidently a letter intended to be deposited in the treasure chest).

This question made Bogdánoff somewhat angry, for he answered: "What sort of presentiment! I'm not your fortune-teller! But if to-morrow it should happen that we have the Japanese guns firing into our sides, you will have a present feeling and no presentiment!"

Some more officers now came up, for there had been frequent discussions as to whether we should encounter the whole of the Japanese fleet off Tsu-shima or only a part of it. The optimists had maintained that Togo would be deceived and would be on the look out for us northwards, inasmuch as the "Terek" and the "Kubán" had started on the 9th (21st) May for the east coast of Japan, and were already causing a real stir in that direction.[1] The opposite party had retorted that Togo understood the situation quite as well as we did, and knew that our supply of coal would not suffice for steaming round the coast of Japan without putting in somewhere to take in a fresh stock. But where? We were no longer in the tropics, but in a part of the ocean where no dependence could be placed on the weather, or, in other words, we could not reckon on being able to coal in the open sea. Could we do so under cover of any bay or creek? No doubt there would be a telegraph system all along the coast, or, at any rate, there would be posts of observation in all directions. And so Togo would receive timely intimation of any such attempt, and could, at any moment, hasten northwards from wheresover he might be. If, on the other hand, we were successful in coaling at sea and managed to enter one of the channels without detection, even then our difficulties would by no means be over, because on account of the narrowness of such waterways they could be easily blocked with either fixed or floating mines, or with partially submerged mines, or we might even be exposed to torpedo attacks in broad daylight. Again, in foggy or murky weather, such channels could not with safety be navigated, especially by a Squadron hampered by transports. Lastly, even if God should bring us through all these difficulties, what then? We should still have to meet the Japanese fleet, which from Tsu-shima would always be ready to issue forth to cut across the course of our Squadron, after it had perhaps sustained losses from either torpedo-boats or mines in the passage of the Straits.

And so it was that First Lieutenant Zotoff, the Senior Navigating Officer, who loved an argument, and who was a good hand at it, raised his voice and said: "Allow me, gentlemen; permit me to have my say! It is evident that for us the best route to take is through the Eastern Channel of the Gulf of Korea. Apart from all other considerations, in my opinion, these are the chief reasons. It is wide, deep, and large enough for manœuvring. Moreover, it is safe for

[1] Fate had not so favoured us. For all this time the "Terek" and the "Kubán" encountered no vessel, nor did they in any way give an indication of their presence in that quarter.—*Author.*

navigation in any sort of weather. Even if the weather were of the worst, the better would it be for us. All this has been said, resaid, considered, reconsidered, and I suppose that even the disciples of Voltaire have nothing left on which to hang a word. I suppose, too, that Togo is not more stupid than we are, and that he also understands all this very well. Besides this, I imagine that the use of a pair of compasses and of four rules of arithmetic would make it quite clear to him also, and then he could, without any trouble, reckon that if we played him such a trick, as to navigate the whole coast-line of Japan, and knowingly subjected ourselves to torpedo attacks before falling in with his main body, he would certainly succeed in catching us up on the way to Vladi-vostók, especially if at the very moment that we were entering the Straits [1] from the open sea, he were to start off from (attention, gentlemen!) from the northern end of the island of Tsu-shima. The mining defences of all the Straits have undoubtedly long since been effected. The naval ports of Aomori[2] and Muroran [3] would be on our beam. Whoever does not know this, then shame be to him. Or if, perhaps, he (Togo) has still to send off in that direction some of his torpedo flotilla, then he himself, with his main body (I will even say with his whole fleet), is where he can only be. Or, no, I will put you this question: 'Where ought he to be?' I affirm nowhere else than close to the northern end of the island of Tsu-shima, and since he is not in the habit of pottering about at sea, then he is lying at anchor in some creek or other."

"At Masampho, for example!" interjected Midshipman Ball, the Junior Navigating Officer.

"I agree, it is at Masampho,[4] but please allow me to finish. All hopes of the absence of the Japanese main body I regard as childish. In my opinion we have now reached the culminating point of our adventure. To-morrow will decide: whether vertically"—here Zotoff energetically brandished his hand perpendicularly—"or——"—and here he slowly waved his hand from right to left, and then he gracefully dropped it, exactly in the parallel of the setting sun.

"How? Why? Why towards the setting sun?" protested those who were standing around.

"What else should I mean," shouted Zotoff, "but that if we are not at once beaten, the end is nevertheless certain! To get to Vladi-vostók after gaining a victory means possession of the sea—and that is unthinkable? To race through is the only possibly way of getting there! And even if we effected 2, 3, or at the most 4 such slips, we should (as a result) burn all our stores of coal and still not have achieved success at sea,[5] and should then have to prepare ourselves for a siege, to drag our guns ashore, and to teach our sailors how to fight with the bayonet."

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[1] I suppose that the orator is here alluding to either the Tsugaru or the La Perouse Straits.—W.E.G.

[2] In the northern end of Hondo Island.—W.E.G.

[3] Not marked on the map.—W.E.G.

[4] Captain A. T. Mahan, U.S. Navy, in his Paper, re-published in the November No. of this Journal, places Masampho "fifty miles from the north end of Tsu-shima."—W.E.G.

[5] Literally, "our buds would have dropped before they had burst into full bloom."—W.E.G.

"À bas! à bas! Conspuez le prophête!" roared some.[1]
"Hear! Hear! Strongly said!" shouted others.[1]

"What is this, an Austrian Parliament? Allow him to finish!" resounded Bogdánoff's bass voice.

"Setting aside the decision of questions of the far future, which has roused the gentlemen who are present to such a pitch of excitement," continued Zotoff, taking advantage of a moment's calm, "I will allow myself to say a few words about the immediate future. I anticipate three possibilities:—firstly, if the Japanese have already discovered us, or do discover us, in the course of this day, then without any doubt during the night there will follow each other a whole series of torpedo attacks, and in the morning a battle with the Japanese fleet. It will be immaterial if this should happen. Secondly, if they do not discover us until to-morrow, then we shall begin the fight in full fettle, whole and undamaged. This will be much better. Thirdly, and lastly, if the fog becomes thicker, and the weather generally becomes worse, then, thanks to the breadth of the Straits, either we shall slip through altogether, or we shall be discovered too late, because then, between us and Vladi-vostók will lie the open sea. This will be best of all. As to which of these possibilities will be realised, let those, who wish to do so, start a totalisator. On my part, whilst preparing for the worst, and anticipating a disturbed night, I would propose to all to take advantage of every free hour to get some sleep, and so be ready for whatever may happen."

This speech had a great success.

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[1] I have transcribed these sentiments just as they appear in the text.—W.E.G.

(To be continued.)

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Admiral—The Right Hon. Lord Charles Beresford, G.C.V.O., K.C.B., to Command of Channel Fleet. Vice-Admirals — Sir R. N. Custance, K.C.M.G., C.V.O., to be Second-in-Command of Channel Fleet; the Hon. Sir A. G. Curzon-Howe, K.C.B., C.V.O., C.M.G., to be Commander-in-Chief of the Atlantic Fleet; Sir C. C. Drury, K.C.B., K.C.S.I., to be Commander-in-Chief of the Mediterranean Fleet; Sir E. S. Poe, K.C.V.O., to be Commander-in-Chief on the Cape of Good Hope Station. Rear-Admirals — F. C. B. Bridgeman, M.V.O., to be Commander-in-Chief of the Home Fleet (with acting rank as Vice-Admiral); H.S.H. Prince Louis of Battenberg, G.C.B., G.C.V.O., K.C.M.G., to be Second-in-Command of Mediterranean Fleet (with acting rank as Vice-Admiral); C. H. Adair to Command of Second Cruiser Squadron; G. A. Giffard, C.M.G., to be Admiral-Superintendent of Chatham Dockyard. Captains—L. Bayly to be Commodore, second class, in charge of destroyers in full commission in home waters, under the orders of the Rear-Admiral Commanding Torpedo and Submarine Flotillas in commission in home waters; W. H. Cowan, M.V.O., D.S.O., to "Sapphire"; C. F. Thorpe to "Grafton"; A. P. Stoddart to "Cornwall"; E. M. Phillpotts to "Euryalus"; W. G. Ruck-Keene to "Bacchante"; H. W. Savory, M.V.O., to "Venerable"; C. G. Chapman, M.V.O., to "Venus."

The first-class battle-ship "Bulwark," bearing the flag of Admiral the Right Hon. Lord Charles Beresford, G.C.V.O., K.C.B., arrived at Spithead on the 26th ult. from the Mediterranean, and the Admiral's flag was struck at sunset the same day. Lord Charles will, as at present arranged, rehoist his flag on 1st March on board the "King Edward VII.," on assuming command of the Channel Fleet. The "Bulwark" is to become the flag-ship of the Rear-Admiral commanding the Nore Division of the Home Fleet.

The second-class cruiser "Fox" arrived on the 10th ult. at Portsmouth from the East Indies, and paid off on the 23rd ult. at that port. The third-class cruiser "Barham" paid off on the 21st ult. at Malta, recommissioning on the following day for a further term of service on the station.

Battle Practice of Destroyers.—The tabular statement supplied with the result of battle practice from the torpedo-boat destroyers of His Majesty's fleet, 1906, is as follows :—

	1905.	1906.
Number of ships that fired	57	52
Number of guns	342	312
Number of hits	653	1,004
Number of misses	2,608	1,898
Percentage of hits to rounds fired	20·02	34·60
Hits per gun per minute { 12-pr.	1·54	2·43
Hits per gun per minute { 6-pr.	1·98	3·73

HOME.

The guns used in this practice are 12-pounders and 6-pounders, and although rather fewer destroyers were engaged and the number of guns fired were less, the number of hits nearly doubled, and the percentage of hits to rounds fired increased by rather more than one-half. The 52 vessels firing are divided between three stations, 12 being in the Mediterranean, 6 in China, and the remainder in the Channel. Those in the Mediterranean came first in the order of merit, with the "Desperate" as best ship; but the best individual score with the 12-pounder in that squadron was made by Petty-Officer H. Hyde, of the "Dragon," with seven hits out of nine rounds in 55 seconds. The China Squadron came next, with the "Janus" as best ship; but the best individual score with the 12-pounder was made by J. Holligan, A.B., of the "Whiting," who made nine hits in nine rounds in 55 seconds. In the Channel, the best ship was the "Swale," but there was no firing with the 12-pounder as good as that already mentioned. With the 6-pounder, the best scores were made in the Mediterranean, where two men made thirteen hits, another twelve, and two others eleven hits, each in 55 seconds. The best score with this gun in China was ten hits, and in the Channel eight hits, and some of the firing was very bad indeed. Out of the 52 vessels firing, only 20, or a little more than a third, were above the average of 37 points. In 14 vessels, no hits at all were made with the 12-pounder. Better firing was made with the 6-pounder, but in several cases not more than one hit per gun was made. The ships at the top of the list in order of merit are the "Desperate," "Bruiser," "Dragon," "Boxer," and "Ariel," all of the Mediterranean, and those at the bottom are the "Boyne," "Cheerful," "Sprightly," "Orwell," "Seal," and "Crane," all in the Channel.—*Times, etc.*

FRANCE.—The following are the principal promotions and appointments which have been made: Rear-Admirals—J. F. L. Krantz to the command of a division of the Mediterranean Squadron; M. Kiésel to the command of a Reserve Division of the Mediterranean Squadron. Capitaines de Vaisseau—F. E. Richard-Foy to be Rear-Admiral; V. M. Morazzani to "Amiral Gueydon"; P. A. De Gueydon to "Dupetit Thouars"; G. L. Prat to "Patrie"; J. P. Nayel to "Victor Hugo"; F. A. Journet to "Magenta"; D. M. Gauchet to "Léon Gambetta"; M. G. J. De Ramey de Sugny to "Jeanne d'Arc"; E. J. Aubrey to "Masséna"; P. M. Vincent to "Gloire." Capitaines de Frégate—P. M. A. Coustolle, J. V. Pradier, M. P. De Pommereau, C. T. Charlier, to be Capitaines de Vaisseau; P. L. Lahondé to "Pourvoyer" and command of Madagascar Naval Division; R. Rougelot to "Lahire"; M. J. Mourre to "Nive"; J. P. M. Delage to command of the 1st Mediterranean Flotilla; G. Béchon to "Dunois."

The Reorganisation of the Fleet.—Some of the arrangements already announced have undergone modification:—

Vice-Admiral Gigon, in command of the Northern Squadron, transferred his flag from the battle-ship "Masséna" to the new first-class armoured cruiser "Léon Gambetta" on 15th January, instead of retaining it in the former ship until the repairs to the first-class armoured cruiser "Montcalm" are completed.

The Northern Squadron, in accordance with the recent order of the Minister of Marine, will henceforth be composed, as already announced, of six armoured cruisers:—

1st Division.—"Léon Gambetta (flag), "Amiral Gueydon," "Dupetit Thouars."

2nd Division.—"Gloire" (flag), "Amiral Aube," "Jeanne d'Arc."

When the "Montcalm," however, is repaired she is to become flag-ship and take the place of the "Léon Gambetta," which is then to proceed to the Mediterranean and join her sister-ships "Jules Ferry" and "Ernest Renan" in the cruiser division.

The small vessels of the Northern Squadron are: The 3rd class cruiser "Forbin," and the destroyers "Cassini," "Bombard," "Bélier," "Catapulte," "Arquebuse," "Baliste," and "Flamberge."

The three coast-defence battle-ships, "Bouvines," "Amiral-Tréhouart," and "Henri IV." which for some time past have formed the 2nd Division of the squadron, have been detached from the squadron and stationed at Cherbourg, where, with the other ships of the same class they will form three groups of three vessels each, *en réserve normale urgente* under a capitaine de vaisseau and two capitaines de frégate, the crews being so arranged that one vessel of each group can be completed to full complement by the other two for periodical exercises at sea. Rear-Admiral Philibert, who has been in command of this division, with his flag in the "Bouvines," has transferred it to the first-class armoured cruiser "Gloire," which has been selected as the flag-ship of the new 2nd Division of the reconstituted squadron.

Rear-Admiral Kiésel hoisted his flag on the 17th ult. on board the first-class battle-ship "Masséna" at Brest, and left on the 7th inst. with the other two ships of his division, the "Jauréguiberry" and "Carnot," for Toulon, where it will form the Reserve Division of the Mediterranean Squadron.

Rear-Admiral Krantz will succeed Rear-Admiral Campion in command of the Cruiser Division of the Mediterranean Squadron, and will hoist his flag on board the new first-class armoured cruiser "Jules Ferry," which has recently completed her trials at Cherbourg, and is to proceed to Toulon to replace the "Jeanne d'Arc," which in her turn is to form one of the new Squadron of the North.

The following is the disposition of the Fleet on foreign stations:—

Naval Division of the Far East.

First-class protected cruiser—"D'Entrecasteaux" (flag-ship of Rear-Admiral Boisse, Commander-in-Chief).
Second-class armoured cruisers—"Bruix," "Chanzy."
Second-class protected cruiser—"Alger."
Destroyers—"Fronde," "Javeline," "Francisque," "Sabre," "Rapiére," "Dard."
Aviso-transport—"Manche."
First-class gun-boat—"Décidée."
River gun-boats—"Argus," "Vigilante," "Olry," "Peiho," "Ta-Liang."
All ships in full commission for the whole year.

FRANCE.

Naval Division of Indo-China.

Second-class battle-ship—"Redoutable" (flag-ship of Rear-Admiral De Marolles, Commander-in-Chief).
Armoured gun-boats—"Achéron," "Styx."
First-class aviso—"Kersaint."
All ships *en disponibilité armée*, with exception of "Kersaint," which is in full commission for the whole year.

Atlantic and Newfoundland Division.

First-cass armoured cruiser—"Kléber" (flag-ship of Rear-Admiral Thierry).
Second-class cruiser—"Jean Bart."
Third-class cruiser—"D'Estrées."
All ships in full commission for the year. The Fishery Protection Duties at Newfoundland, which have for many years been carried out by a small division specially commissioned for the purpose during the Fishery season, will, in the future, be carried out by one of the ships of this division .

Pacific Naval Division.

Second-class cruiser—"Catinat" (senior officer).
First-class gun-boat—"Zélée."
Aviso-transport—"Vaucluse."
All ships in full commission for the year.

East Indian Naval Division.

Second-class cruiser—"Descartes" (senior officer).
First-class gun-boat—"Surprise."
Aviso-transport—"Rance," for surveying service in Madagascar.
All ships in full commission for the whole year.

M. Lockroy's Letters in the "Temps" on the French Navy (continued).—It would be interesting if, when considering what economies can be effected, we could compare the actual cost of work done in foreign dock-yards with the cost in our own arsenals; but to do this satisfactorily it is necessary for the naval authorities themselves to be able to state how the money voted is expended, which, notwithstanding the luxury of a large staff of officials, is just what they do not appear able to do.

That this superabundant staff is composed of a *personnel* above all suspicion, and most anxious to do its duty, need hardly be stated, it is the organisation which is at fault, and of this we find proof in the official documents issued; it appears that it is often impossible to tell in any exact way what is the actual cost of certain work done, or how much useful work is represented by wages paid; there are enigmas in the accounts, which often appear insoluble and which quite defeat official enquiry. How matters progress in the workshops, and what has been happening with regard to the issue of naval stores, cannot be exactly determined; it is certain, however, that if any private manufacturer kept his accounts in the same manner, he would soon find himself in difficulties.

All this is to be found in a document which no one reads, perhaps because it is dull, though it is also instructive, namely, the Official Report of the Commission of Public Accounts. The last report which I have been able to obtain, namely, that of 1903, quite recently issued, contains, like its predecessors, some most interesting revelations, which, though

concerning matters not of supreme importance, are nevertheless serious, in so far as they expose how impossible it is for the naval authorities to determine exactly in what manner the money voted for the Navy is expended.

I could mention many curious facts, but will only select a few. Some tin cans were ordered to be made by the dockyard, the work being given to the coppersmith's shop. There were three sizes: small, medium, and large; one would naturally suppose that the large size would cost more than the medium, and these more than the small, but the auditor of accounts was astonished to find that the small cost 8 francs 14 cents, the medium 5 francs 44 cents, and the large 7 francs 90 cents, the explanation given is that when finished they were not watertight and the joints had to be re-made, and the extra cost, instead of being spread over the whole, was only charged to the small size cans; of course, this is not a very serious matter in itself, but it is serious in so far as it shows how difficult it is to get at the actual cost of an article made in the dockyards.

Another case is that in which orders were given for two lots of brass rods, first for 160, and afterwards for 100; it appears that for the making of these rods, all of exactly the same thickness and weight, twice as much brass material was issued for the first lot of 160 as for the second lot of 100. Of this discrepancy the auditor was not able to obtain any information; but what makes these two cases almost laughable is, that both tin cans and brass rods are articles which could be obtained at smaller cost from private firms by sending an official to purchase them from the nearest ironmonger.

On another occasion some brass tubes had to be made, for which the storekeeper issued 26 kilograms of brass; but when manufactured it was found that the tubes weighed 34 kilograms, or 8 kilograms more than the actual material issued. No one can explain this miracle, but as a set-off on another order for tubes being given, for which 27 kilograms of brass were issued, the weight when made was only 17 kilograms.

The Navy also constructs furnaces for roasting coffee; perhaps it would be more economical to buy these also outside; however, they are made in the arsenal; but the workmen's time book shows that several men were employed making furnaces in September which had already been delivered in July; the auditor asked for an explanation of this, but none is forthcoming.

The most curious story of all, however, concerns the casting of a part of a capstan, for which a wooden mould had to be prepared, on which a great deal of time and labour was spent: 17 days' work in April; 28 in May; and 10 in June. One would suppose that the casting itself would take, if not longer, at any rate, some time, but not a single day's work is charged for it, and no single human creature appears to have had a hand in its manufacture.

These are not the only irregularities exposed by the auditor; there are others more important, involving larger sums of money, but all goes to show that if economy is to be hoped for, we must first begin by putting the dockyard accounts in proper order.

The auditor adds to his report a long and conscientious minute, which merits the attention of the heads of departments concerning the cost of bread at the different military ports. Four out of our five arsenals possess a milling plant, and grind their own flour for bread and biscuit, only one (Lorient) buys its flour outside. The price of corn varies considerably at the different producing arsenals, 100 kilograms, for instance,

costing 3 francs less at Brest than at Toulon, which is explained by the situation of the latter arsenal and the cost of transport, etc. What, however, is remarkable is the difference in cost of manufacture at the various arsenals; to manufacture 100 kilograms of flour costs at Cherbourg 26 francs 57 cents; at Rochefort, 26 francs 70 cents; at Brest, 27 francs 74 cents; and at Toulon, 31 francs 57 cents, or 5 francs more than at the first-named port.

This difference in price calls for enquiry, more especially as each arsenal has its own system of keeping accounts, which the cleverest person cannot understand. What is certain, however, is that the manufacture of flour at Toulon costs the public 750,000 francs (£6,000) more than at Cherbourg. Lorient, as has been said, buys its flour in the outside market, and the price paid when compared with that produced at Cherbourg, the cheapest of the four milling arsenals, shows that the quintal of flour, which costs 26 francs at Cherbourg, costs only 23 francs at Lorient; moreover, the cost price given is net, and does not represent the total loss.

Surely this proves it to be the duty of the naval authorities to abolish this costly system of manufacturing its own flour.—*Le Yacht*, *Le Temps*, and *Le Moniteur de la Flotte*.

ITALY.—*The Naval Manœuvres, 1906.*—The great naval manœuvres took place between the 10th and 26th October, 1906, in the Ionian Sea. The Headquarters of the fleet was at Taranto, where it was concentrated on the 9th October. Admiral H.R.H. the Duke of Genoa, who flew his flag on board the first-class battle-ship "Lepanto," was in supreme command, with Rear-Admiral Chichochia as his Chief of the Staff; the torpedo-aviso "Fulmine" acting as despatch vessel.

The fleet was divided as follows for the manœuvres:—

1st Squadron.

Vice-Admiral di Brochetti.

Battle-ships—"Regina Margherita" (flag-ship of Commander-in-Chief), "Benedetto Brin," "Ammiraglio di St. Bon," "Emanuele Filiberto."
Torpedo-Aviso—"Coatit."
Destroyers—"Nembo," "Aquilone," "Turbine," "Espero."

2nd Squadron.

Rear-Admiral Moreno.

Armoured Cruisers—"Garibaldi" (flag-ship of Rear-Admiral), "Varese," "Francesco Ferruccio."
Torpedo-Aviso—"Agordat."
Destroyers—"Ostro," "Freccia," "Borea," "Zeffiro."

3rd Squadron.

Rear-Admiral Biotti.

Battle-ships—"Dandolo" (flag-ship of Rear-Admiral), "Re-Umberto," "Francesco Morosini," "Ruggiero di Lauria."
Torpedo-Aviso—"Caprera."
Destroyers—"Euro," "Lampo," "Dardo," "Strale."

Torpedo-Flotillas.

Captain Presbitero with broad pennant, in despatch-vessel "Rapido."
1st Flotilla—Sea-going Torpedo-boats—"Spico," "Sirio," "Sagittorio," "Serpente."
2nd Flotilla—Sea-going Torpedo-boats—"Pegaso," "Perseo," "Procione," "Pallade."
3rd Flotilla — Sea-going Torpedo-boats — "Condore," "Aquila," "Avvoltoio," "Sparviero."

With 30 second-class torpedo-boats distributed at different points along the Ionian and Adriatic coasts.

For Defence of Tarento Harbour.

The Submarines — "Glauco," "Squalo," "Delfino," with 13 third-class torpedo-boats.
In addition were attached to the fleet the "Volcano" (factory-ship), "Bronte" (special fleet collier), "Tevere" (cistern ship), and "Cyclope" (parent-ship of the submarines).

The manœuvres were divided into five distinct periods :—

1st Period.—Mobilisation at Tarento; alarming the garrison and manning the works; torpedo and submarine exercises off the Port; taking up the appointed positions for the strategic manœuvres.

2nd Period.—Strategic manœuvres of the 2nd and 3rd Squadrons against the 1st.

3rd Period.—Wireless telegraphy and scouting exercises.

4th Period.—The fitting up of two Sicilian Ports, as *Points d'Appui*, by the fleet entirely from its own resources.

5th Period.—Tactical exercises during the return of fleet to Tarento and attack on that port.

The Duke of Genoa hoisted his flag on the 1st October on board the battle-ship "Lepanto" — used as the gunnery training-ship — at Spezia, and proceeded in company with the "Fulmine" to Tarento, where the manœuvre fleet had been ordered to assemble. On the 6th October he took over the supreme command of the fleet, and on his part delegated the command of the three squadrons to Vice-Admiral Brochetti, as the senior flag officer.

The first manœuvre-period began at 6 a.m. on the 10th October, with an alarm of the Port of Tarento. The ships and vessels of the fleet completed with coal, provisions, and ammunition as was requisite, and cleared for action. The garrison manned the forts, placed the booms in position, and generally put the harbour into a state of defence. During the afternoon the three submarines were practised in attacking the fleet, which was lying at anchor in the Mar Grande[1]; they succeeded in entering the harbour unperceived, and placed the "Regina Margherita" and "Emanuele Filiberto" out of action; manœuvre torpedoes were used by the boats. An attack on the fleet by the torpedo-boats during the following night was unsuccessful, the boats being discovered in good time.

On the 11th, in the forenoon, the 2nd and 3rd Squadrons left Tarento to take up their stations at Augusta and Brindisi, respectively, preparatory to the commencement of the strategic manœuvres. The torpedo-flotillas were also distributed along the coast, between Tarento-Brindisi, and Alice and di Stilo Points, with orders to take every opportunity for attack-

[1] The large outer roadstead of the Port of Taranto.

ing the squadrons while under weigh. On the night of the 11th also, the submarines made another attack upon the 1st Squadron, which was still lying at anchor in Mar Grande, and which proved successful in spite of the utmost vigilance on board the ships.

The following was the theme of the strategic manœuvres during the second period:—The 2nd Squadron, from Augusta, and the 3rd from Brindisi, had to effect a junction at a selected point in the Ionian Sea. The 1st Squadron at Taranto, considered stronger than the 2nd, and weaker than the 3rd, was to intercept and beat the 2nd Squadron before a junction with the 3rd could be effected. The 1st Squadron was to be held to have carried out its duty, if it fought an hour-long action with the 2nd, before the 3rd arrived on the scene to its help. Forty-eight hours after the beginning of the exercise all three Squadrons were to be in position 18 miles to the south-east of Cape Colonna. The 1st Squadron acquitted itself of its task in brilliant style. On the evening of the 12th it had taken up a position off Cape Colonna. The destroyers of the 1st Squadron, which, acting as scouts, proceeded in a southerly direction, when darkness came on, succeeded, during the night, in getting in touch with the 2nd Squadron and bringing their own ships against the enemy. When on the morning of the 13th the decisive action took place, the 3rd Squadron was still far from the scene of action. A heavy south-westerly gale only permitted this Squadron, which consisted of the oldest units of the Italian fleet, to make slow progress. Moreover, as the result of the heavy rolling of the ships, the wireless telegraphy poles were carried away, while the destroyers had to take shelter under the land, so that scouting, or getting in touch with the 2nd Squadron, became impossible. Some delay was also caused by a man falling overboard from the "Ruggiero di Lauria"; all efforts to save him, owing to the heavy sea, were fruitless. After the action between the 1st and 2nd Squadrons, the battle-ships and armoured cruisers proceeded to the rendezvous, where they found the Commander-in-Chief, who had stationed himself during the manœuvres off Cape Colonna. After the fleet had concentrated, the third period of the manœuvres began.

This period was devoted entirely to wireless telegraphy practice. The 1st Squadron proceeded from the rendezvous to Augusta, the 2nd Squadron making a communication chain, extending from Cape Maria di Lucca to Augusta, which was about 60 miles in length. As soon as the news of the arrival of the 1st Squadron was received, the 2nd Squadron concentrated and also proceeded to Augusta with orders to avoid the widely-extended scouting-vessels of the 1st Squadron and those of the 3rd Squadron, which was lying off Syracuse.

With the 14th October began the fourth manœuvre period, the turning of the harbours of Syracuse and Augusta into *points d'appui*. The works carried out were designed primarily to protect the Squadron lying there against the attacks of torpedo-boats. The ships made and placed different booms at the harbour's mouth, installed search-lights on shore, and constructed provisional batteries at the entrance to the harbour, which were armed with 14-pounder Q.F. guns from the ships. Wireless telegraphy stations were also set up on shore in communication with the ships. These works were carried out by officers and men with great ardour and skill, and much friendly rivalry among the crews. Thus the 1st Squadron, in a day's work, constructed batteries on Santa Croce, Point Izzo, and the Magnisi Peninsula at Augusta, and armed them, although very great efforts had to be made in getting the heavy weights into position up steep cliffs where there were no roads. On the 16th October

practice took place from the improvised batteries, which proved their usefulness, and on the 17th the defence works were reported as complete.

From the 17th to the 21st evolutions and battle-tactics were carried out by the fleet; the opportunity being taken of making the captains show their skill as division leaders. The destroyers and torpedo-boats were also exercised at tactics, attacks during the night being made on the newly fortified harbour for testing the value of the defence works. The Commander-in-Chief inspected the different units of the fleet, and the defence works erected at the two harbours, but did not himself tactically exercise the fleet. With the 21st October the fourth period came to an end. The torpedo-flotillas, which had been having some very hard work, were detached to Taranto, and the other ships, after re-embarking their guns, search-lights, etc., prepared for the impending arrival of the King, the 3rd Squadron returning to Taranto, and the "Re Umberto" proceeding to Naples to embark His Majesty.

On the forenoon of the 24th October, the 1st and 2nd Squadrons steamed to meet the King, effecting a junction with the "Re Umberto" off Cape Spartivento, a series of battle-tactics were then carried out, at the end of which the fleet steamed past His Majesty in review order, and, later, shaped course for Taranto. The following day the last phase of the manœuvres began with an attack on Taranto. From 1 p.m. the fleet bombarded the outer works, steaming out again to sea, however, when towards evening a general attack by the whole torpedo-flotilla was launched against it. On the forenoon of the 26th October the two Squadrons renewed the bombardment, after having repulsed during the night several attacks by the torpedo-boats. At the end of two hours the outer works were considered to have been put out of action. The factory-ship "Vulcano" was then sent forward to clear a way through the Channel between San Paolo and San Vito, which was supposed to be blocked by mines; this duty being carried out, the "Ammiraglio di St. Bon" followed the "Vulcano" into the Mar Grande, taking up a position which enabled her to bring the inner works under fire, a flotilla of boats in the meantime clearing the remaining mines away. At 11.30 a.m. both Squadrons steamed into the Mar Grande and anchored, the manœuvres being then brought to an end. The Commander-in-Chief, as principal Umpire, had transferred himself to the "Fulmine" during these operations. The King remained at Taranto until the 28th, and witnessed some attacks by the submarines, and also target practice from three of the battle-ships.

A glance at the manœuvres shows that they were really little more than the ordinary Squadron exercises, although the joining of the Reserve Squadron and torpedo-flotillas to the Active Fleet made the exercises possible on a larger scale. There were no fleet tactics or strategic manœuvres on a large scale, the Commander-in-Chief himself only acting as Inspector and Chief Umpire; steaming at night by the ships only took place on four occasions; tactical exercises, towing, etc., were only carried out on the passage from Taranto to Brindisi and Augusta, and between the 17th and 21st October. The fact that the armoured cruisers, except during the wireless telegraphy exercises, acted as battle-ships, and the want of other cruisers, prevented any attempt at carrying out cruiser tactics. Far different was the training of the torpedo-flotillas, as was the case also last year; they were kept at it the whole time, the larger vessels having to do the scouting duties for the fleet; moreover, they had to work in exceptionally bad weather, and they deserve full credit for the zeal and devotion to their work they displayed. Surprisingly

ITALY.

good results were obtained by the submarines; in a, comparatively speaking, short time, the officers and men had learnt to handle the new boats "Glauco" and "Squalo," and the faith in these vessels has been correspondingly increased, while the course of training appears to leave nothing to be desired.—*Marine Rundschau* and *Revue Maritime*.

UNITED STATES. — *Report of Secretary of the Navy.* — The Secretary of the Navy, in his annual report, calls attention to the report of the *Personnel* Board transmitted with it. He disapproves of some of its suggestions concerning the line, printing them in italics in the report, and appending to each passage thus indicated a brief statement of his own views within brackets. The report, he states, could be modified in the sense he suggests without materially affecting the scheme of legislation advocated by the Board. The Secretary says:—

"This proposed legislation offers a remedy for two serious evils, namely, the absence of opportunity for officers of flag rank to familiarise themselves by actual experience with their duties as commanders of fleets, divisions, or squadrons in the short time to elapse before their retirement for age, and, secondly, an impending period of great stagnation in promotion when the large increase among the junior officers, caused by the augmented classes of graduates from the Naval Academy, shall produce its inevitable effects. It is believed that the plan of the Board is, on the whole, satisfactory to the line officers of the Navy, and its adoption by the Congress will be generally accepted in the Service as a gratifying step in advance. I refrain from any recommendation with respect to the second report on the staff corps and the marine corps, because it is impossible to say that it has, in the main, received the approval of the officers most directly affected, and I am not prepared to advise the embodiment in legislation of any plan which will not, finally and once for all, end the regrettable and chronic differences existing for so long between the staff corps and line. The plan of the Board on *Personnel* includes the creation of three vice-admirals. I very earnestly hope than even if the entire plan submitted should not be embodied in law at the approaching session, this feature of it will receive legislative sanction, at least to the extent of providing the Navy with two officers of rank and title corresponding to their functions.

"In the report of the *Personnel* Board there will be found a recommendation that the classes at Annapolis be not reduced in number at the time now fixed by law. I heartily approve this suggestion, but I further recommend that all vacancies in the lowest grades of the pay corps and the marine corps be then filled by the appointment of graduates of the Naval Academy, and that undergraduates who desire to qualify themselves as medical officers or civil engineers be allowed to pursue a special course of study during the last two years of their curriculum at the Academy, which, with a post graduate course of two years longer, may qualify them for appointment as assistant surgeons or assistant civil engineers. This two-year post graduate course in these branches would be a substitute for the one year at sea recommended by the *Personnel* Board for all midshipmen before they receive commissions as ensigns, the year's delay being no more than a sufficient deterrent to prevent too many undergraduates selecting non-combatant branches of the Service. It is my belief that when all officers, whether of the line or of the staff, are educated together and appointed in like manner, the feeling of antagonism between the two branches will gradually but surely disappear, and also

that, until this is done, this antagonism will continue, although some less radical measures may be effective to remove minor causes of friction and dispute. Undoubtedly one such measure would be a settlement of the perrenial controversy as to the titles of staff officers. I think this question of titles, which, although apparently of slight importance, is, nevertheless, by no means trivial in all its consequences, should be determined by legislation. If possible a solution should be found which will meet the reasonable wishes of all parties concerned; but if this be impracticable, the question should be settled and settled finally, and then all parties will in time adapt themselves to the settlement."

Report of the Personnel Board—General Board.

The *Personnel* Board asked to be excused from considering the third subject submitted to them, that of changes in the organisation of the department and its bureaus or boards recommending the organisation of a Technical Board, which, if approved by the Department, would not require legislative action. The Secretary says:—

"It seems to me desirable that a very radical and thorough-going change should be made in the organisation of the Department, and the plan tentatively suggested in my last annual report, with some modifications of consequence, appears to afford a reasonable promise of satisfactory results.

"The work of the Department should be grouped into four sections, one under the immediate direction of the Secretary, another under that of the Assistant Secretary, and the remaining two under officers of flag rank. Of the last-mentioned two sections, one should be entrusted with the duties now imposed upon the Bureaus of Yards and Docks, Equipment, Construction, and Repair, Steam Engineering, and Ordnance, and the officer at its head should have as assistants the Chief Constructor, the Engineer-in-Chief, and two officers not now designated in the law, for whom I suggest the titles of Master of Ordnance and Master of Public Works, the last mentioned to be a civil engineer of the Navy. These officers should not be chiefs of bureau, but the deputies and technical advisers, in their respective provinces, of the chief of section, and should discharge such special duties of supervision or otherwise as he might from time to time delegate to each of them. Moreover, they should form a board, under his presidency, which would discharge the duties now imposed by regulation upon the Board on Construction, and any other duties which the Department might deem it wise to confide to this board from time to time hereafter.

"The other chief of section should be entrusted, in the main, with the direction of the Navy as an organised and fighting force, his province being thus broader than that of the Chief of the present Bureau of Navigation, and he also should have four assistants, in the Surgeon-General, the Paymaster-General, the Commandant of the Marine Corps, and the Superintendent of the Naval Academy. The duties of these officers would be necessarily more permanently specialised than those of the first-mentioned group, but they should all be the deputies, within their several fields of action, of the chief of section, and, like the other group, should constitute a board, under his presidency, from which the Department might expect advice on all matters affecting the *personnel* of the Navy.

"The Secretary should immediately supervise the civil establishment, the Office of Naval Intelligence, and the Office of the Judge-Advocate-General, and also the affairs of localities, such as Tutuila and Guam,

which are essentially naval stations but contain an appreciable civil population. There should be, likewise, attached to his office a master of accounts, who should be a trained accountant.

"In addition to the duties now imposed upon the Assistant Secretary by the regulations, he might be required to supervise the work of certain agencies of the Department, which are not necessarily within the province of either of the two section chiefs, such as the Hydrographic Office and the Naval Observatory. It is fully recognised that this arrangement is not strictly logical, but some symmetry of theory must be sacrificed for practical advantages, and it seems clear that if the work of the Navy as a great manufacturing establishment and repair shop is to be consolidated and put under one head (a measure which appears to me highly advisable in the interest of efficiency and economy), the work of the Bureau of Ordnance should go with it. On the other hand, the agency which adjusts pay and provides supplies would fall naturally within the group controlled by the chief of the *personnel* section.

"I respectfully suggest that a suitable commission, consisting of three or more ex-Secretaries of the Navy and two or more members of the Committee on Naval Affairs of each of the two Houses of Congress, under the presidency of the Secretary of the Navy for the time being, be appointed to consider this plan, and also any other suggestions on the same subject matter, and to report at the first session of the Sixtieth Congress."

The Secretary also recommends that the four years' term and necessity for confirmation by the Senate of chiefs of bureau be abolished; that these positions be recognised distinctly as military assignments and not civil offices, and that they be filled and held in the pleasure of the President. This recommendation extends to the proposed chief of section, if the plan of re-organisation suggested shall be adopted. It is not intended to interfere in any way with the present law respecting the rank and pay of chiefs of bureau. The Secretary thinks that the criticism to which the General Board has been subjected is due in part to its unfortunate name. It should have been styled "The War Board," the work for which it is designed being that of maturing plans for war. The Secretary says:—

"The General Board has discharged these duties to the entire satisfaction of the Department, and though, fortunately, no opportunity has yet been afforded to test its efficiency in actual warfare, experience in connection with minor active operations has been most instructive as to its value. It may be questioned, however, whether the Board is not more numerous than the public interest requires. If the plan of reorganisation hereinbefore suggested shall be substantially adopted, the General Board might be, with advantage, composed of the two proposed chiefs of section and three officers specially designated by the President, after consideration of the confidential recommendations of the Secretary of the Navy. While, however, there shall be on the active list of the Navy an officer of a higher rank than vice-admiral, he should form part of the General Board as matter of right, and such officer, or the senior of them, if there be more than one, should be *ex-officio* its president. It would be well to provide by law for the organisation of the General Board, provided that its duties should be always liable to modification by Naval Regulations. In any event, however, the members of this Board, other than the officers forming part of it by virtue of their rank, should be specially designated by the President or the Department, and should be liable to relief at any moment, so as to insure absolute harmony between its views and those of its superiors."

As the result of the legislation for the Naval Academy, "hazing" is practically, if not wholly, extinct, at least for the moment. "Moreover, the action of the Department in holding out the opportunity for early graduation as an incentive to hard study and consequent high marks in the present graduating class, seems to have raised the standard of scholarship and promoted worthy and sensible ideas among the undergraduates on this subject. And it is a source of gratification to the Department, as well as of credit to the present Superintendent and Academic Board, that conditions in the Academy have improved so notably within the past twelve months."

The improvements at the Academy are approaching completion. Congress is asked, however, to provide a receptacle in the chapel for the body of Paul Jones, discovered and brought to this country by General Horace Porter at an expense to him of 35,000 dollars. General Porter waïved his claim, but expressed the wish that this amount should be added to the cost of preparing a befitting permanent resting place for our great sailor. It is also recommended that a bronze memorial tablet should be erected at Annapolis to commemorate the merits and public services of Professor William Chauvenet, whose counsel and assistance were of great value in effecting the establishment and organisation of the Academy by Secretary Bancroft in 1845.

It is recommended that the title "mechanician" be substituted for that of "Warrant Machinist," and that of "Academic Professor" for "Professor of Mathematics."

Recruiting, Desertion, Naval Reserve, Marines.

Mr. Bonaparte declares that the popular impression that aversion to the military service explains the difficulty of obtaining recruits for the Navy is a mistaken one. During the past year greater pains have been taken to advertise the merits of the Navy, and the results have been, on the whole, decidedly gratifying. There is good reason to suppose that before the end of the present fiscal year the Navy will have reached its legal limit of strength. In view of these facts and of the urgent necessity for more men to properly man ships which must come into commission within the next twelve months, it is suggested that Congress accord the increase of strength requested by the Bureau of Navigation.

A year's further experience has strengthened the Secretary's impression that desertion is "an evil of only subordinate importance." The moral culpability it involves is imperfectly appreciated by those whose position and standing would suggest an abhorence of the crime. In perfectly clear cases of desertion, the Department is frequently besieged with entreaties for a wholly undeserved clemency on the part of prominent members of the community and even of men in public office, who apparently fail to realise that a part of a deserter's punishment ought to be the blame and aversion of all good citizens. This callousness to the true nature of conduct, plainly immoral, is yet more strongly shown in cases of applications for release on the ground of fraudulent enlistment. The Secretary says: "I am happy to say that the earnest protests made by the President, the Department, and prominent officers against indignities inflicted on enlisted men, by an insulting discrimination against the uniform they wear, have caused a very gratifying and salutary expression of public opinion on this subject. In the absence of legislation on the subject, I respectfully submit for your consideration the advisability of an Executive order directing this Department to report and publish the

names of all establishments in which such discrimination against the uniform has been exhibited, and forbidding all persons in any branch of the executive public service to in any wise patronise or frequent the establishments thus designated. In my judgment, it is of great moment that the Government should be known to be in earnest in thus demanding respect for its military servants."

The Secretary makes an earnest argument in favour of establishing a Naval Reserve, in the course of which he says:—

"The assurance that 20,000 thoroughly competent seamen could be secured at any moment for our fleet would be very well worth 5,000,000 dollars a year; indeed, as a mere matter of economy, this would be a good investment, since it might obviate the necessity of maintaining a large number of ships in commission in time of peace, so as to be assured of having them ready in time of war. I suggest, therefore, for your consideration and that of the Congress, the propriety of allowing every able-bodied man of good moral character, within certain limits of age, who has served at yeast four years in the Navy and been discharged with credit, to be enrolled on a reserve list, in return for which he should receive from 15 dollars to 25 dollars per month, according to his rating at the time of leaving the Service. Enlistments in the reserve should be for four years, and consecutive re-enlistments should not be permitted, unless under very exceptional circumstances. I would limit the number in the reserve to, say, 20,000 men. If the organisation of this force were combined with a provision for subsidies to vessels having an American registry and suitable for naval use in the event of war, by requiring that a certain proportion of their crews should be made up of men in the Naval Reserve, it would undoubtedly be more certainly effective; but even without any such provision I believe a reserve of experienced men could thus be obtained who not only would be nearly or quite as serviceable, when called upon for duty, as the active *personnel*, but also immensely increase the efficiency and consequent utility to the Service of the remaining members of the Naval Militia."

The Secretary approves the recommendation of the Board on *Personnel*, that the number of chaplains be increased from twenty-four to forty. He says: "There should be, in my judgment, a chaplain on every first-class vessel of the Navy and on each one of as many smaller vessels as can be suitably provided. I do not think it right that several hundreds of our citizens, on our largest vessels as many as 800, or even more, should live for months isolated from all religious observances, should be deprived of the consolations of religion in case of sickness or death, and should be unable, in case of need, to call upon a spiritual adviser." He reviews the recommendation of last year's report, that a moderate number of temporary chaplains—say ten—be appointed annually to serve four or five years, and that the permanent corps be recruited from those who have manifested their fitness for the work during such period of temporary employment. A number of chaplains could be set free for employment at sea by dividing the salary of one regular chaplain between four or five of the pastors of the neighbourhood, who could serve as acting chaplains.

It is proposed to forbid by law the establishment of evil resorts within a certain radius of naval stations. It is again recommended that a small corps of commissioned officers, to be known as "civilians," be attached to the naval establishment, employed in the higher posts now filled by civil employés in the Department and at the more important naval stations, and recruited from the most competent and deserving members of the civil establishment. Also that a corps of marine engineers be

organised for shore duty only. The word "steam" should not figure in their title, because acquaintance with electrical engineering has already become an important part of the equipment of a competent marine engineer, and daily tends to become of greater consequence, but the organisation of these two corps might also serve to afford an opportunity for promotion in cases of exceptional merit, on the one hand to the pay clerks, and on the other to the present warrant machinists.

An increase in the Marine Corps, the promotion of the commandant to major-general, and the appointment of two brigadiers is recommended; one in command at General Headquarters and the other in command of reserve brigade for duty where and when needed. Special legislation in the interest of individual officers is condemned. The request of rear-admirals retired before the passage of the *Personnel* Bill, that they be placed on the same footing as those of their rank retired since then is approved. While it cannot be considered a grievance for one officer that a brother officer receives increased pay, his own not being diminished, but remaining as it was previously, there is still something invidious in an apparent discrimination of this nature. The number of officers affected is small. The legislation asked for by the J.A. General, especially that relating to civilian witnesses, is approved, and authority to pay for legal advice out of the contingent fund is asked. Oaths of disinterestedness to contracts should be abolished.

Increase of Navy.

In addition to the one dry dock asked for by the Bureau of Yards and Docks, one should be constructed and retained on the Pacific Coast. These docks should be slightly larger than the Dewey, so as to take vessels of 20,000 tons. In reference to the description of the battle-ship authorised which is contained in the Appropriation Bill of last year, it is suggested that the insertion of this proviso has established a precedent of doubtful merit; that its moral effect, both at home and abroad, has not been wholly desirable, and that it appears in forcible contrast to the action of at least one foreign Government in dealing with the same subject matter. It is the universal desire of the construction departments in Navies to keep their designs, as nearly as possible, secret; and, so far as I am aware, this is the only instance in which disapproval of this policy has been apparently indicated by the legislative branch of any Government.

An extension of two months in the limitation of the time for the trial of submarines is asked for because of the inclemency of the weather in Narragansett Bay in February and March. In reference to the numerous suggestions of well-meaning people that the progress of science may do away with the necessity of fighting, Mr. Bonaparte says:—"This was first expected of automobile torpedoes, then of torpedo craft, then of submarines, and lately even of dirigible balloons. Experience has indeed indicated that all of these several inventions, except the last, may have a legitimate, although very circumscribed, field of utility in modern naval warfare; but I feel that I ought to place on record in this connection the conviction of the Department that the only trustworthy safeguard for our country against injury from a hostile battle-ship is to have at least one American battle-ship ready to deal with her." Next follows this frank confession of error on the part of the worthy Secretary himself:—

UNITED STATES.

"In my last annual report I stated that 'the aggregate of our battle-ships, armoured cruisers, and coast-defence vessels built, building, or authorised, would seem, according to present indications, sufficient to provide for any contingencies within the limits of probability.' When this statement was made the facts seemed to justify an assumption, at least tentatively, that the foreign Navies with which it is material to compare our own had, in general, reached the limits of extension immediately contemplated, and there appeared to some persons a fair prospect that some reduction of naval armaments or, at all events, some limitation to their indefinite increase, might result from the contemplated Hague Conference.

"Without sharing the last-mentioned expectation, I yet deemed that I could then safely speak as I did; but, without going into detailed explanations, which are needless and might be objectionable, it is my duty now to report to you and to the Congress that, in my judgment, circumstances have so far changed as to make provision for a moderate increase in the effective fighting strength of our Navy the part of patriotic foresight at present. I recommend, therefore, that, as soon as may be practicable at this session, the Congress authorise the construction of a sister-ship to the one already authorised, and of which the plans are now submitted; so that, by simply duplicating these plans and the further detailed specifications and drawings by which they are to be supplemented, we can have two vessels of this class completed within the time which would otherwise be needed for the construction of only one.

"It was my opinion, as expressed in my last annual report, that the authorisation of two 16,000-ton battle-ships of the type of the "South Carolina" and "Michigan," which, if authorised, could have been completed simultaneously with the last-mentioned vessels, thus providing us at once a squadron of four homogeneous ships, would have been the most appropriate form in which to provide for the maintenance of the strength of our Navy at the last session. For the same reason, I now think it highly advisable that a consort to the single vessel authorised as a substitute for the two recommended be authorised at this session, and if possible, early in the session, so that we may have greater benefit from the increased speed of these larger ships, an advantage in great part nullified when the swifter vessel is the only one of her class in a fleet. The additional vessels which I think should be authorised at this session are indicated later in this report."

Answering the criticism concerning the placing of contracts for armour plate, the Secretary states that he gave some of the work to the Bethlehem to break up a combination against the Government. He says :—

"If the Secretary of the Navy were authorised to buy armour plate abroad whenever, in the judgment of the President, the price at which he could obtain such armour plate in the United States was exorbitant or unreasonable, there is good reason to believe that the manufacturers would either not form a combination at all or agree upon a reasonable and moderate price. I would extend the like authority to the purchase of torpedoes, ammunition, projectiles, and, in fact, all articles necessary to the national defence. It is evident that such articles stand on a totally different footing from such as are manufactured only for private consumption. The Government has the constitutional right—a right inherent in its sovereignty—to take, by the exercise of its power of eminent domain, any article necessary to the national defence and already in existence, upon paying for it a reasonable price.

"When citizens of the United States, enjoying the protection of its laws, who are engaged in the manufacture of articles of this character, refuse to manufacture them for the Government unless it shall agree to pay for them an exorbitant and unreasonable price, they evidently defraud it of an opportunity to exercise its just constitutional powers and evade the fulfilment of their duties as patriotic citizens. Therefore, whatever may be the general economic policy of the Government, the markets of the world ought to be open to it in dealing with the situation thus created. A special report of a Board of officers upon the cost of armour plate is appended to this report."

The Secretary has modified his opinion concerning the rebuilding of the "Constitution," and now recommends that she be put into a condition to be towed from point to point to take part, and especially to fire salutes in patriotic celebrations at seaport towns.

In view of his inability to obtain from the different bureaus a statement of the amount included last year under the different heads of expenditure, a Commission was appointed to investigate the systems of accounting and book-keeping in use in the Department and to report a plan whereby the desired information might be hereafter preserved and furnished when needful, with as little additional labour to the clerical force, and consequent expense to the Government, as might be possible; this Commission has made a preliminary report. It is recommended that 50,000 dollars be appropriated annually for the benefit of the islands of Guam and Tutuila. Setting forth in contrast the views of the General Board and the Board on Construction on the subject of new vessels, the Secretary says, in concluding his report:—

"The two Boards differ as to the size of the scout cruisers recommended, the General Board holding that vessels of this type should be considerably larger than the three scouts now building, while the Board on Construction advises that we simply build two more of this class. In view of this difference of opinion between the Boards and of the fact that the scout cruisers now building are, in a sense, experimental, and that a very much better judgment as to desirable characteristics of this class of vessels can be formed after their completion and trial, I do not recommend the authorisation of any scout cruisers at this session of Congress.

"While the ship's motor torpedo-boats and shallow-draught river gunboats recommended by the General Board could be undoubtedly built out of the general appropriation for small craft, as is suggested by the Board on Construction, and in accordance with reasonable and well-established practice; nevertheless, I see no objection to their special authorisation by the Congress, particularly in view of their very moderate cost.

"With respect to the two battle-ships which, with the one already authorised, would make three equal in fighting force to any which, so far as is known, will be possessed by a foreign power at the time of their completion, I have already said that I consider the authorisation of one such vessel, a consort to the ship already authorised, is clearly demanded by the requirements of reasonable foresight for the national safety under circumstances now existing. I am not prepared to say this so unhesitatingly for the second vessel recommended, but in view of the unanimous and emphatic advice of all those in the Department most competent to speak on such a subject and bearing the responsibility for its proper decision, I deem it my duty to counsel this further addition to our force.

"In closing this report I think it is but right to call attention to certain features of our country's situation, which, although sufficiently

UNITED STATES.

obvious and of self-evident importance, nevertheless appear to be frequently overlooked. Although a Continental Power, for practical purposes we share with Great Britain the immense advantage of an insular position. Provided our naval strength be sufficient to retain command of the sea, we are absolutely safe from invasion, and consequently escape the burdens of a vast military establishment which bear upon all the great Powers of the European Continent; but if we have not a sufficient Navy, the oceans to the east and west of us, instead of serving as bulwarks for defence, become highways for invasion. The extensive steam merchant marines which serve the commerce of the world are no less available to transport men and munitions of war, and they place our shores within a week's, or at least a fortnight's, march of a powerful Army from any one of the great military countries of the world—a danger rendered far more serious by the fact that an enemy coming by water is restricted to no line of advance ascertainable beforehand, and may choose for aggression any point of our coast-line which seems the most vulnerable. Under these circumstances, unless we are willing to maintain a strong Standing Army, the maintenance of our naval strength is a matter of supreme moment to the national safety, and I am convinced that an enlightened and patriotic opinion will assent gladly to any reasonable sacrifices necessary to assure such safety. The pecuniary burden imposed on each inhabitant of the United States for the maintenance of the Navy may be estimated roughly, but with a fair approximation to accuracy, at one-third of that borne by each inhabitant of Great Britain and Ireland, and the burdens of personal service to the like end at about one-seventh. Expressed in figures, we may say that the cost of the Navy amounts to about 1·33 dollars per annum for each inhabitant of the United States, and that about six men out of every 10,000 inhabitants are at present bound by law to naval service. Surely such burdens as these, or even some very slight increase of these burdens, will be accepted without reluctance or murmur by the patriotism and good sense of the American people."—*U.S. Army and Navy Journal.*

MILITARY NOTES.

HOME.—The following are the principal appointments which have been made :—

General—E. H. Clive, to be Colonel of the King's (Liverpool Regiment).

Lieut.-Generals—Sir C. E. Knox, K.C.B., to be Colonel of the King's (Shropshire Light Infantry).

Major-General—D.M.B.H. Earl of Dundonald, C.V.O., C.B., to be Lieut.-General.

Colonels—H. H. Wilson, D.S.O., from A.A.G. at Headquarters, to be Commandant of the Staff College, with the temporary rank of Brigadier-General while so employed. A. E. Altham, C.B., C.M.G., is granted the temporary rank of Brigadier-General. C. V. Wingfield-Stratford, from h.p., to be a Chief Engineer. L. E Kiggell, from a D.A.A.G. at the Staff College, to be an Assistant Director at Headquarters. F. Rainsford-Hannay, from a Chief Enginer, to be Commandant School of Engineering. P. A. Kenna, V.C., D.S.O., Commanding 21st (Empress of India's) Lancers, to be an A.D.C. to the King. H. J. Archdale, C.B., from h.p.,

to be a Brigadier-General to Command a grouped Regimental District. C. A. Hadfield, from Assistant Director of Supplies and Transport, to be Inspector of the Army Service Corps. G. C. Henry is promoted to the rank of Major-General. E. O. F. Hamilton, C.B., a Brigade Commander in India, is promoted to the rank of Major-General. W. Fry, C.B., from h.p., to be a Brigadier-General to Command a grouped Regimental District. G. E. Shute, from h.p., to be a Chief Engineer.

Organisation of the Regular Field Army in the United Kingdom.—A special Army Order, dated 1st January, 1907, embodying a new Army scheme, was issued by the War Office on the evening of the 12th January, 1907. The Order gives the following as the organisation for war of the Field Army for service abroad :—

1 Cavalry division of 4 brigades.
6 Divisions.
Army troops.
Troops for line of communications.

The following is the outline of the organisation for war, giving the composition of brigades, divisions, and Army troops :—

A.—Composition of a cavalry brigade.—Headquarters, three cavalry regiments.

B.—Composition of a cavalry division.—Headquarters, four cavalry brigades; cavalry divisional troops: cavalry divisional artillery (headquarters, two horse artillery brigades); cavalry divisional engineers (headquarters, four field troops); one cavalry divisional transport and supply column, four cavalry field ambulances.

C.—Composition of an infantry brigade.—Headquarters, four infantry battalions.

D.—Composition of a division.—Headquarters, three infantry brigades. Divisional troops: Divisional cavalry, two Imperial Yeomanry squadrons. Divisional artillery: Headquarters, three field artillery brigades, one field artillery (howitzer) brigade, one heavy battery and ammunition column, one divisional ammunition column. Divisional engineers: Headquarters, two field companies, one divisional telegraph company, one divisional transport and supply column, one divisional transport and supply park, three field ambulances.

E.—Composition of a mounted brigade.—Headquarters, one cavalry regiment, one horse artillery battery, and a mounted brigade ammunition column, two mounted infantry battalions, one mounted brigade transport and supply column, one cavalry field ambulance.

F.—Composition of the Army troops for a force of a cavalry division and six divisions.—Army headquarters, two mounted brigades, two Imperial Yeomanry squadrons, one infantry battalion, two wireless telegraph companies, two cable telegraph companies, two air-line telegraph companies, three balloon companies, two bridging trains, one Army troops transport and supply column, two field ambulances.

The corresponding organisation of the Regular Field Army in peace will be four cavalry brigades, six divisions, and Army troops.

Army troops consist of those units which form part of an expeditionary force but which are not included in the organisation of a cavalry division, division, or lines of communication.

As it is impracticable to locate the whole of the divisional artillery in the command in which that division is situated, and as it is considered inadvisable to break up brigades of howitzer and heavy artillery in peace

time, divisional artillery will be completed on mobilisation as shown in Field Army tables.

No alteration will be made in mobilisation equipment until the receipt of revised mobilisation store tables.

The following will be the areas of command :—

I. Aldershot.—Headquarters, Aldershot. The area of the command will be as at present.

II. Southern Command.—Headquarters, Tidworth. The area of the command will comprise the counties of Warwickshire, Worcestershire, Gloucestershire, Oxfordshire, Buckinghamshire, Berkshire (except Windsor for Household troops and that portion of the county included in the Aldershot Command), Cornwall, Devonshire, Somersetshire, Dorsetshire, Wiltshire, and Hampshire, with the exception of that portion included in the Aldershot Command.

III. Eastern Command.—Headquarters, London. The area of the command will comprise the counties of Northamptonshire, Rutlandshire, Cambridgeshire, Norfolk, Suffolk, Essex, Huntingdonshire, Bedfordshire, Hertfordshire, Middlesex (except that portion included in the London District), Kent, Surrey (except that portion of the county included in the Aldershot Command), and Sussex.

IV. Irish Command.—Headquarters, Dublin, will include the whole of Ireland, units being stationed at the Curragh, Dublin, Newbridge, Belfast, Holywood, Enniskillen, Londonderry, Mullingar, Kildare, Ballinrobe, Athlone, Limerick, Fermoy, Tipperary, Cork, Kinsale, Buttevant, Ballincollig, Cahir, Waterford, and Kilworth. It will consist of the Third Cavalry Brigade and its artillery, five infantry brigades, and divisional and Army troops.

V. Scottish Command.—Headquarters, Edinburgh, will comprise Scotland and, so far as regards the Regular Forces, Berwick-on-Tweed. One battalion of Army troops will be stationed at Edinburgh with one training brigade of the Royal Field Artillery; at Glasgow there will be the same force, and one battalion will be placed at Fort George.

VI. Northern Command.—Headquarters, York. The area will comprise Berwick-on-Tweed (so far as regards the Militia, Imperial Yeomanry, and Volunteers) and the counties of Northumberland, Cumberland, Westmorland, Durham, Yorks, Lincoln, Notts, Derby, Staffs., and Leicester, and that portion of Lancashire included in the Border Grouped Regimental District. It will consist of one infantry brigade, divided between Lichfield, York, and Sheffield; one cavalry regiment at York, one brigade of Royal Horse Artillery at Sheffield, and one training brigade of artillery at Newcastle-on-Tyne and Bradford.

VII. Western Command.—Headquarters, Chester. The area will comprise Wales and the counties of Cheshire, Shropshire, Hereford, Monmouth, Lancashire (except that portion included in the Northern Command), and the Isle of Man. Pembroke Dock, Newport (Mon.) and Preston will have one heavy brigade of the Royal Garrison Artillery, two training brigades of the Royal Field Artillery, and one provisional battalion divided between them.

VIII. London District.—Headquarters, London. The area of the London District will comprise the London County Council area within the county of Middlesex, the Guards' Depôt at Caterham, and (for Household troops) Windsor. For purposes of training the camp at Pirbright will be included in the London District.

The following memorandum signed by the Under-Secretary of State, on the organisation of the troops forming the Field Army for service abroad, was issued by the War Office:—

1. A revised war organisation for the Field Army for service abroad has been approved and issued as a special Army Order.

2. In the organisation approved the force will be composed of divisions instead of army corps. The division is the only independent unit of all arms. The abolition of the army corps has necessitated an increase in the establishment of a division, which now contains three brigades of infantry, with a corresponding increase in the proportion of artillery, engineers, medical and supply services. The composition of a division is shown in the Army Order; it amounts approximately to half the strength of an army corps.

3. The main portion of the field force will be, as heretofore, composed of serving soldiers supplemented and augmented by men of the Army Reserve. These, however, will not be sufficient in numbers to complete the force of one cavalry division, six divisions, army troops, and units for lines of communication. The deficiencies in the force will be made good by adding a proportion of men whose functions in war can be performed by soldiers who do not require the continuous training necessary for combatants.

4. Formerly the protection of the main body of the Army was entrusted partly to the divisional and corps cavalry, and partly to the cavalry brigades in advance of the Army. On the one hand, the divisional cavalry was inadequate to the efficient performance of its duties, and on the other hand the cavalry brigades were somewhat hampered as regards the freedom required for their proper *rôle* of exploration. The reorganisation of the cavalry and other mounted troops is designed to overcome these objections.

5. The arrangements necessary for the provision of information differ materially from those required for the protection of a force. Whereas in the one case it will usually be necessary for the strategical cavalry to concentrate in order to gain information, in the other a dispersion of force will frequently be forced upon the mounted troops which are charged with the protection and concealment of the main columns. Again, in order that the strategical cavalry may accomplish its mission, it may possibly have to work round the adversary's flanks, thereby uncovering the front of its own Army. For these reasons, and also with the object of increasing the mobility of the mounted force for strategical purposes, the cavalry brigades are now formed into a cavalry division, operating for strategical purposes under the direct orders of the Army Commander. The horse artillery and engineer field troops will normally be employed as cavalry divisional troops; they can, however, be attached to cavalry brigades when required. The four mounted infantry battalions, with two regiments of cavalry and two batteries of horse artillery, form two mounted brigades in advance of the main body of the Army.

6. The whole of the artillery in the field is allotted to divisions, except the horse artillery for the mounted troops. The divisional artillery thus includes three brigades of Q.F. guns, one brigade (two batteries) of field howitzers, and one battery of heavy artillery. The increase in the supply of ammunition required by modern conditions is provided for by an addition to the number of wagons with the batteries and brigade ammunition columns, and by substituting divisional ammunition columns in place of the parks, each of which formerly carried ammunition for three divisions corps troops, and a cavalry brigade.

HOME

7. The more important changes in the engineer services are connected with the telegraph and bridging units. Modern requirements demand a considerable development and increase of the former, which are now represented by a divisional telegraph company with each division for communication between divisional headquarters and the brigades, and two cable, two wireless, and two air-line telegraph companies with Army troops for communication with the divisions, the mounted brigades, the cavalry division, and the line of communication, as well as two telegraph companies for work on the lines of communication. Field companies, of which two are allotted to each division, are provided with bridging equipment for small crossings; when larger bridges are required to be constructed, the bridging trains will be brought up to supplement the field companies.

ARGENTINE REPUBLIC. — *Reorganisation of Military Districts and Divisional Staffs.*—A new regulation reorganising the command of military districts and the divisional staffs has recently been published by the War Minister :—

Military Districts.

In each of the five military districts into which the Republican territory is divided, an army division of the 1st line will be recruited and mobilised, which will bear the number of the district and be under the command of the district commander. That officer will have, in addition, in the event of mobilisation, the command of the National Guard and territorial forces of the provinces of which the district is composed. Amongst other duties the district commanders will have the following:—

1. To draw up a plan of the complete mobilisation of the 1st and 2nd line divisions, which should take place in their districts, taking into account the partial plans of units. The mobilisation plans, of an absolutely secret nature, will be only known to the Army Inspectors, for the corps of their branches of the Service, and by the chiefs and officers who take part in their preparation.
2. To exercise the greatest supervision over recruiting operations.
3. To ensure the requisition of the necessary vehicles and animals in the event of mobilisation.
4. To direct grand manœuvres.

Garrisons of troops settled by the War Minister as permanent, on the recommendation of the General Staff, may not be changed by commanders of districts, but they may introduce some provisional changes of them in case of urgent service necessity. District commanders exercise their superior territorial authority through:—

1. Commanders of infantry brigade zones.
2. Commanders of artillery brigade (in their quality of national inspectors).
3. Commanders of recruiting and mobilisation areas.

They exercise the chief command through :—

1. Infantry and artillery brigade commanders.
2. Commanders of units of the other branches of the Service.
3. Directors of departments attached to the district, who are responsible to them for the discipline, interior economy, training, and preparation for mobilisations of the units and *personnel* under their orders.

In order that the district service may continue to act in war time, a supernumerary commandant is nominated to each district during peace, as well as the *personnel* of staffs charged with the recruiting and mobilisation of the 2nd line.

Staffs.

Staffs attached to districts which should provide for the mobilisation of a division of the 1st and one of the 2nd line, will be called "Army Divisional Staff," and will include the *personnel* of the following sections :—

1st Section (*Staff*).—Mobilisation, concentration, marches, transport, cantonments, bivouacs, manœuvres, reconnaissance, maps, defence of the district and its frontiers, measures to ensure mobilisation and concentration, lines of communication, statistics, knowledge of neighbouring territories, especially the frontier, study of foreign armament and Armies, principally those of adjoining Powers, staff rides, study of regulations of all arms, technical instruction of officers.

2nd Section (*Recruiting and Orders*).—Daily orders, garrison duty, position and distribution of troops, recruiting, state of animals, armament, and ammunition, sick, punishments, detachments, study of regulations on garrison duty and interior economy, reserves administration, remounts, archives.

3rd Section (*Commissariat*).—Clothing and equipment, payment, feeding, preservation of buildings and camps of instruction, direction of corps administration, *personnel* of the administration.

4th Section (*Medical*).—Hygiene, medical service, training of hospital orderlies and stretcher bearers, revision of conscripts, study of *matériel* in service and medical regulations, direction of medical *personnel*, clergy's service. *Sub-section* (*Veterinary*).—All matters of veterinary interest, inspection of meat and forage, sanitary condition of ground and localities for animals.

5th Section (*Justice*).—Matters relating to military legislation, procedure and penal laws.—*Revue Militaire des Armées Etrangères.*

BOLIVIA.—*The Bolivian Army.*—But little is known of the Bolivian Army in its new formation, and but too frequently only short notices are published with regard to it in military periodicals, which do not correspond to the actual facts. It may therefore be of interest to give a short review of that Army as it now exists.

For some years the French Colonel, Sever, who is there invested with general's rank, has been Chief of the General Staff. He is subordinate to the War Department in peace, and in war he is under the Commander-in-Chief of the Army, who, according to the order, is the President of Bolivia at the time, who, however, if not a soldier, can transfer the chief command.

The General Staff deals with the training of the Army, the supervision of educational institutions, organisation, defence, promotions, and mobilisation. It is divided into the following, viz. :—*Active Section*, which occupies itself with the organisation, administration, and training of the Army and educational establishments; *Territorial Section*, which is in charge of mobilisation, statistics, and military history; *Geographical Section*, which deals with the survey of the country and with cartographical works of all sorts.

General Staff officers are drawn from the War School, or, rather, the General Staff School. At the present time there are two French officers on the General Staff, as well as a lot of Bolivian officers who passed through

BOLIVIA.

the War School in previous years. The War School course lasts for two years. According to the present regulations, the object of the institution is, in the first place, the training of staff officers, and in the second place, that of instructors for units. Every year there is a tactical staff ride of four weeks, and in addition several tactical rides take place in the country during the school period.

The following subjects are taught: Ordinary and applied tactics, military history, strategy, fortification, topography, staff duties, riding, mathematics, physics, chemistry, French, German, geography, and International law. In addition, war games are constantly played. The method of teaching is practical. During the first year an examination is held at the end of the course, and a further concluding examination at the end of the second year's course.

The Cadet Corps, whose course lasts for five years, trains youths for the position of officers. Many important civilian branches of learning are taught, as well as tactics and musketry. The greatest weight is laid on practical training, and therefore drills, shooting, field manœuvres, gymnastics, fencing, and riding form the most important part. The youths then enter the Army as lieutenants.

The reorganisation of the Army will be undertaken in the course of the present year. Previously Bolivia had 5 infantry battalions, with a strength of from 300 to 380 men each, a cavalry regiment of about 400 men, and a mountain artillery regiment armed with Creuzot shield-protected batteries. It is proposed to raise another cavalry regiment as well as a field artillery regiment. In addition to these troops there are also some *columnas* of about 50 men, as well as 2 cavalry squadrons, which do duty in Grau Chaco. The 3rd Infantry Battalion is quartered in the north on the Peruvian frontier, where large profits are made from india-rubber in the great primeval forests.

The period of service in the Army is, at the present time, for one year, and in theory all young men of 20 years of age are liable to serve, but as a matter of fact, only a small proportion enter the Army. The new organisation will introduce a change in this respect, and will also establish the reserves on a satisfactory basis, and a commencement has been made to promote in every way rifle shooting everywhere throughout the country.—*Militär-Wochenblatt.*

CHINA.—*Nankin Manœuvres in 1906.*—The Nankin troops held manœuvres, for the first time, in 1906. The following took part in them:—

The 33rd, 34th, and 35th Infantry Regiments, 2 squadrons of the 9th Cavalry Regiment, 2 batteries of 4 guns each from the 9th Artillery (Mountain) Regiment, as well as 2 pioneer companies from the 9th Battalion, and half a medical detachment.

If the manœuvres in Northern China, which comprised a very considerable area, might with justice be termed Japanese and not Chinese, as the heroes of Mukden and Liao-Yang were largely represented on all the staffs; the manœuvres which took place on the Yang-tsze, however, may be regarded as altogether Chinese. Only two Japanese officers were present, merely as spectators, and took no part in them.

The corps of officers of the Middle Chinese Division (the 9th) is a very youthful one. No member of it, including the commanding officer, is more than 30 years old; many of the regimental commanders were 25 years and younger. Every individual displayed the utmost keenness in the business in which he was taking part. When one remembers that the

CHINA.

newly organised 9th Division had only been in existence for the space of a year, one can only speak of the results displayed with the greatest respect. The *matériel* of the rank and file, when considered as a whole, may be regarded as good. The men are not especially big, but they are, on the whole, strongly built and well grown. They are very docile, and made some excellent marches. One saw, too, that every one of them during the three days' manœuvres did his utmost to ensure the success of the whole thing.

The infantry and pioneers are armed with the Japanese '97 rifle, 6·5 calibre; the cavalry have the sword and carbine, and the artillery a mountain gun, 7-cm. calibre, made in the Shanghai arsenal.

The uniform of the troops is black, in summer khaki; infantry with red, cavalry with white, artillery with yellow, pioneers with blue, and medical troops with green stripes on the forearm, with same colour cap-bands and shoulder-straps. The men wear laced leather boots, with putties reaching to the knee, two cartridge pouches, valise with cooking implements, but no entrenching tools. Every man has, in addition to his overcoat, a woollen covering, carried in the valise. Tent materials are not yet carried by the men, but tents are with the transport. As a cap badge the men wear a yellow or white shield, the size of a shilling, with a dragon worked on it; the officers wear a button, viz.: Subalterns, a white one; staff officers, a blue one; and general officers, a red one, similar to the old official buttons.

The plan of the manœuvres displayed both tactical and strategical knowledge. The detachments were always supposed to be fighting in conjunction with, and as part of, large bodies of troops. During the first day an action, including an advance and retirement, took place; on the second day one side took up a defensive position and was attacked by the other; and on the third day all the available troops, under a brigade commander, operated against a skeleton enemy. On account of the narrowness of the roads the infantry march formation was columns of twos. The march discipline left nothing to be desired. The order of march was similar to that of our regulations, except on one remarkable occasion, when the artillery marched at the head of a column. The advanced guards and patrols certainly gave more the impression of playing at "robbers and soldiers." In spite of the sometimes considerable marches, I only saw one man fall out.

In action it was apparent that the troops were still lacking in the knowledge of taking cover and of observation of the enemy's fire action. The skirmishing line frequently lay where they were least expected; everywhere on the battle-field close formations were observed in the enemy's zone of fire; the artillery was placed with the guns only from two to three paces apart, and frequently on hills where they were easily seen.

With regard to outpost duty, too, the young troops lacked the necessary knowledge, as did the cavalry with regard to scouting. When one, however, remembers that the organisation has barely been in existence for a year, one may confidently anticipate that with careful instruction a thoroughly serviceable Army for war may be turned out in a short space of time.

The Governor-General, Tuan-Sang, was present at the manœuvres every day, and himself criticised the conduct of the manœuvres at the close of each day.—*Militär-Wochenblatt.*

JAPAN.—*Musketry Instruction.*—The following article was published in the *Heiji Zashi* (*Military Review*). This review appears twice monthly,

and publishes articles on the Army and Navy, information on foreign Armies, orders, appointments, etc. :—

1. *Musketry Preparatory Exercises.*—Preparatory exercises form the basis of musketry instruction. Incomplete primary instruction adversely affects subsequent development, and especially as regards battle firing. If, therefore, the instructors do not act, from commencement to conclusion, on a settled plan, and do not most carefully supervise the instruction of their pupils, they can never obtain good results. Up to the present the exercises have been carried out in the following order : Firing standing, kneeling, and lying down, and this has always been considered advantageous. But amongst those desirous of introducing innovations, there are some who are of opinion that, according to the experiences of the Russo-Japanese war, firing standing should be entirely abolished. Those who think thus forget that firing standing forms one of the bases of instruction. It is not right to do away with this practice until sufficient skill has been attained in the three practices, firing standing, kneeling, and lying down, and until recruits have been inspected in them. After that one can confine oneself to developing firing kneeling, lying down, and from a rest. In all these kinds of practice it is of primary importance to aim well, to fire well, and to hold one's rifle well. The soldier should be taught to recognise that the fruit of a thorough instruction is the proper use of the rifle. In aiming practices the objects should be placed as far off as possible; it should also not be forgotten that accuracy should be the first condition in musketry.

2. *Judging Distance.*—The best means of judging distance is by the eye. This was experienced by everyone in the Russo-Japanese War. It is for that reason that from now in all drills where possible the men, and especially the officers, should be exercised in rapidly estimating the distance of infantry objectives, difficult to make out, at distances of more than 700 or 800 yards off. Further, it is proposed to instruct both officers and non-commissioned officers in the use of the Souchier and of the latest English-made telemeter.

3. *Instruction Practices.*—In instruction practices the firer must be made to conform strictly to all the principles taught him in the preparatory exercises. The first exercises should not be hurried through. In ball practice especially should the procedure be deliberate. In the Russo-Japanese War everyone recognises the importance of improving ball practice against badly visible objectives.

4. *Battle Practice.*—(*a*) Individual battle practice. In this practice it is especially of importance to rapidly fix on the objectives, to profit by the nature of the ground, and to carefully select the points to be aimed at. The method of fire to be used is precisely similar to that of skirmishers. (*b*) Collective practice. This practice was only adopted in 1903, when the musketry regulations were revised. The Russo-Japanese War showed in many cases that the combined action of men in the firing line left much to be desired. It is most important that in future more stress should be laid, in collective practice, on the combination of individual with collective skirmishing fire. (*c*) Collective skirmishing practice. Sectional battle firing is best suited to actual fighting. One should, therefore, as far as possible select infantry targets, badly visible, at medium and long ranges. Further, the commander must estimate the enemy's situation, judge the distance, indicate the proper time for the commencement of the fire, point out the objective, the most appropriate species of fire, the manner in which the skirmishers should advance, etc. He must also supervise the soldier's method of making use of the ground, the aiming

JAPAN.

at scarcely visible objectives, the handling of the rifle, and especially take care that he doesn't fire too quickly. "For myself," adds the author of this article, "I am not in favour of firing at too long ranges."—*Militär-Wochenblatt.*

Effects of the Japanese Rifle, Model 1871[1]. — Japan possesses we believe, the rifle of the smallest calibre of all those that are at present in service. (Note: See description of the Japanese rifle in the *Revue d'Artillerie*, Vol. 62, p. 217. The calibre of this rifle is 6·5-mm. Italy, Roumania, Sweden, and Norway have a rifle of the same calibre. The Lee rifle of the United States Navy is 6-mm, and the Mexican rifle is 5-mm.) When war was declared it was thought that, notwithstanding its exceptional flatness of trajectory, the immediate effect of the bullet on man was not sufficient to disable him at once, and would allow him to continue in action until put out by the results of the wound.

This question was the object of a special study by Surgeon-General Kikouchi upon Russian prisoners, a study of which we give being the free translation:—

"The Russian prisoners arriving at Matsouyama for treatment afforded me an excellent opportunity to find out the exact qualities of our new rifle 'Meï-dji,' now used for the first time. As regards the wounds, they in general appear benignant (*de bonne* nature), which furnishes an evident proof in favour of the humanity of a projectile so dreaded.

"I should state here that before the adoption of this rifle by our Army I was specially charged by our Government with studying its defects and its good qualities. This was not the easiest matter, for naturally I could not ascertain practically the effects of the projectile upon living men. We used in our trials cadavers as well as living animals, and from the results of these experiments I felt I could strongly recommend to the Japanese Government this weapon as being an advance over the old one. I affirmed especially that each shot—no matter how slightly it touched any vital part of the body—would immediately disable the man struck, and that, moreover, the per centage of cures would be greater than formerly.

"But soon, in the Press of our country, there arose on all sides doubts as to the effects of our small-calibre, jacketted bullet, and when some authorised high-ranking foreign officers appeared in the theatre of war and contradicted the statements made by me, I frankly feared for my affirmations. The results of the present war have only confirmed my remarks in a most striking manner, for, besides the enormous penetrative force of our bullet, it is proven that the effect produced upon an enemy when he is struck is sufficient to render him at once incapable of further combat, even when the wounds are of but little gravity.

"On the other hand, the surprising rapidity with which the wounds often heal must be considered as a great step in the direction of humanity. This result comes especially from the fact that the very slender bullet penetrates rapidly without producing great ravages or extended fractures with fragments in the part struck. The greater part of the Russians who have fallen into our hands up to now had received their wounds in the combats on the Yalu. Since then forty days have elapsed, and improvement has been almost everywhere so rapid, even for those who

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[1]Extract from *Ueberall*, No. 32, 1904. See also *Revue d'Artillerie*, Vol. 58, p. 399, note on the wounding effects of the new arms.

were severely wounded, that they may be considered as almost cured, and that a great number of them have been discharged as cured. Among them, however, were some men very gravely wounded. One of them, for example, had a lung pierced, and had lost, I estimate, from three quarts to a litre of blood. Now, this man has been discharged this very morning as cured. Another had received a dangerous shot in the lower abdomen; a third had had his left arm, his lungs, and then his right arm pierced; still another had been struck by a bullet which pierced the upper part of both thighs; and many others had received similar wounds. These wounded, surprising to relate, did not die. On the contrary, as has already been said, they are, for the greater part, either well on the way to recovery or completely cured.

"If these wounds had been made with our former Mourata bullet their healing would have very doubtful and very long. During the Chinese war, 1894-1895, in which we used the Mourata rifle exclusively, wounds of this kind soon became infected and the patient was then lost. Nowadays our diagnoses are almost always favourable, for we do not have to fear grave ulterior complications, except in very small proportions.

"I might even affirm that, in spite of its rapid penetration into the body struck, and in spite of the slight extent of the wounds, the effect is more rapid upon the wounded than with the old Mourata rifle (a pretty close copy of the Gras rifle). According to my personal observations, and basing myself on my experience in the Chinese war and in the present war, I might even affirm that the Mourata bullet, with slow penetration, did not cut cleanly the veins and nerves which it encountered, but pushed them aside like rubber tubes, leaving the veins intact. This is no longer the case with the Meï-dji bullet, which pierces whatever resists it, and always cuts the veins cleanly, which naturally causes a great loss of blood and soon disables the wounded. Among the wounded Russians there were a great many who had received not one, but up to seven and even more wounds, which made me fear at first that in many cases the wounded man had not been put out of combat until after receiving several wounds. This fact would have corroborated my adversaries. I set to work to investigate carefully these cases, and personally questioned the men who had received several wounds, in order to find out when and how they had been wounded. The result of my investigation was to prove that, with very rare exceptions, the Russians had been laid out at the first shot. With the extraordinary flatness of trajectory of our rifle, these unfortunates, who were in the first line, being neither assisted nor removed by their ambulances, were all the more frequently hit as our troops approached closer to the Russians. They declared that the Japanese projectiles 'shaved' the ground. However frightful these successive wounds may appear, I must, however, say that I was pleased with this explanation, for it confirmed my first explanation.

"There still remains some doubt as to the effect of the projectiles of the Japanese artillery. This is because the Navy has succeeded still in keeping secret the nature of the projectiles employed in the battle of Tchemulpo, for example. Some competent men who saw the Russians wounded at Tchemulpo think that the Japanese used only shrapnel, while in Japan it is generally thought that it was a shell charged with a high explosive which burst into thousands and thousands of fragments like a shrapnel. Moreover, there is a certain fact that the Russian sailors were completely riddled with wounds, and that there were extracted from the bodies of certain of them more than 100 little splinters.

"The Japanese in their Schimose powder have certainly a powerful explosive. It is currently said that it must be the same as that used by the German Army. For the Japanese the main point—and that is amply sufficient from the military point of view—is that they have a superior powder, remarkable arms, and that their soldiers know much better how to use them than do the Russians."—*U.S. Journal of the Military Service Institution.*

JAPAN AND RUSSIA. — *Observations During War in Manchuria.* — The reports of our military observers attached to the Armies in Manchuria during the Russo-Japanese war bring out more clearly the advantages which the Japanese had over the Russians in the great contest. A very unfavourable impression was obtained by Colonel Schuyler of the manner in which the Russians were conducting their service of security and information, while that of the Japanese was characterised by alertness and snap. The Russians made the mistake our General McClellan did when he was similarly deficient and overestimated the numbers of the enemy. The organisations to which killed or captured Russians belonged could be determined by the regimental numbers, but the Japanese concealed this information by taking off their regimental numbers. The Russians guarded their front exclusively with Cossack posts and a few lookouts in trees. They showed a great lack of proper scouting, and were at first misled by a contempt for their enemy. Captain Reichmann considers it fortunate that our own officers have always exhibited such keen interest in the small details of the service of security and information and the attack. Both Armies made use of the Chinese in the spy service, and this gave the Japanese a great advantage, as they understood Chinese, and could readily deceive the enemy by temporarily transforming themselves into Chinamen. The Russian spies were sometimes made use of by the Japs to convey false information to the enemy. On the whole, it would appear, however, that the Russians were more popular with the natives than the Japanese, and the most strenuous efforts were made by Russians in authority to secure just treatment for them.

Both sides showed excellent judgment in avoiding noise. No salutes were fired by the Japanese, and they only turned out the guard for officers of very high rank. They made but little use of trumpet calls, and the shouting of orders was not conspicuous. Their equipment was so disposed that it would neither jingle nor rattle. Captain Reichmann was told by the Russians that his sabre and tin cup were the only things in their Manchurian Army that rattled and reflected the sunlight. There is nothing in the equipment of the Russian infantryman that rattles.

The Japanese wear a uniform less distinguishable than that of the Russians. They used smokeless powder, while that of the Russians revealed their positions by a light blue smoke; they made better use of cover, and showed more skill in the construction and use of rifle pits.

Both Armies were remarkably free from disease, due in part to the fact that they eat but little meat. The Japanese observed more closely than the Russians the regulations which both Armies had for the use of boiled water; but when on the advance they neglected sanitary precautions, quartering their men in filthy Chinese huts, allowing the water to be polluted by the washing in it of mess tins and clothes; animals were slaughtered near where the men lived, and the skins, and frequently the entrails, were left to rot on the ground. Captain March, who reports

this, observed many Japanese, when they came to water, drinking it without boiling. In short, a precious lot of humbug has been talked about the wonderful sanitary service of the Japanese. Their immunity from disease was due in large part to conditions which were equally operative in the Russian ranks, and which gave both Armies a great advantage in sanitary statistics over gross-eating and over-fed Americans and Europeans. Until the hard frosts came in November all Manchuria was swarming with flies, and mosquitoes were numerous. Yet even the Russians did not get typhoid. The Russian soldier, as the result of his home experience, is able to adapt himself to most uncomfortable conditions. Physically, he is generally a magnificent specimen. High living has not made his system delicate or his blood impure. His main food is black rye bread, and Captain Reichmann suggests that bacilli and microbes breed less freely in his dejecta than in that of men whose chief food is meat. "In no other way," he says, "can I explain the absence of epidemics of camp diseases in the crowded and insanitary camps. The Russian is not bothered with nerves, and in place of the Japanese stoicism he shows religious resignation. His relations with his officers are cordial and pleasant, and discipline is not so severe as supposed, and accommodates itself to existing conditions. He is stupid, and lacks initiative, and here is where the Japanese has the advantage of him; but he stands killing splendidly. The Jap is small, but he is sturdy, strong, active, and intelligent, cheerful and contented, ever happy but remarkably undemonstrative. Even in attack there was no cheering.

The tremendous losses suffered by the Russians at the battle of the Sha river did not demoralise them. The more they were hammered the better they fought, and yet those drafted to the colours because they have not influence enough to take advantage of the numerous exceptions and exemptions are the most undesirable class of conscripts, a large percentage of whom cannot read and write. Physically, the Russian soldier is a magnificent specimen.. Their marching power is good, and if they are slow it is because they are overloaded with equipments. The Japanese were also overloaded.

Captain Reichmann attributes the remarkable sanitary statistics of the Russian Army largely to the field kitchen and to the unusual use of hot tea. The Russians were enthusiastic about their kitchen.

There is a lesson for us in the statement of Captain Morrison, that one marked feature of the Japanese system is their avoidance of detail from the fighting units, special troops being employed for the work we impose upon our fighting men.

The Japanese had the gun sling, and always wore it loose, the infantry marching a great deal with the sling. They used bicycles to a limited extent, but had no bicycle corps. They did not use automobiles or captive balloons, and so far as seen by Captain March they brought machine guns into use after the battle of the Sha river. The Russians began to use war balloons about the 1st August; the heliograph was in common use by them, and they made great use of beacons for alarm signals.

The Japanese made their advances at a run. The first three rushes were made by battalion, later by company, and then by platoon. "Their infantry attack offers nothing startlingly new." Captain March says: "There is a decided reaction from the great extensions advocated by some and used in South Africa." Supports when used were brought into line bodily and as soon as their fire could be used. The rushes are by *échelons*. The advance always begins on one flank. When the first to rush have been halted, those following come abreast of them, and so on

until the line is up. The small calibre bullets have too little stopping power. Many men hit continued to fight, and many others who left the field were back to duty in a few days. If there were no good, quick shots, advance by file will result in little injury. The Russian formation for attack was in three lines, the first and second lines deployed.

Well disciplined troops, well instructed in rifle practice, do not require more than 200 rounds for an attack. It is practically impossible to furnish the firing line with fresh ammunition.

No attempt was made at surprise in night attacks by either side. The Russians sometimes advanced at night with drums beating and singing their war songs. They seldom used field music, its place being supplied by singers detailed from the companies.

It is questioned whether our rod bayonet and our sword would be effective in actual fighting, and both bayonet and sword proved in Manchuria that they are by no means obsolete weapons. The Japanese bayonet is a knife bayonet with the edge ground sharp, and their sword a short two-handed weapon intended for cutting, not thrusting, and swordsmanship is with them a natural inheritance. Their bayonet was more effective than that of the Russians. Captain Riechmann suggests that it was the inefficiency of infantry fire that made bayonet attacks possible. There was much firing into the air on both sides, and the firing was out of all proportion to the casualties. The Russian soldiers were woefully deficient in target instruction.

As to the cavalry, we are told that the Cossacks are regarded, even in Russia, as an antiquated institution. Those in Manchuria were bred on the steppes and ignorant of mountain service. Their patrolling and outpost duty were very badly done. They did not understand the use of cover, while the Japanese invariably took cover and dismounted to fire. They fought on foot as the Russians usually did, though the Russians frequently fired mounted. Captain Reichmann tells us that "the war has shown nothing new in the use of cavalry in dismounted action, and the achievements of our cavalry in the Civil War still stand unsurpassed. But cavalry no longer has the advantage in armament it then had, and can no longer hope to fight, as it did in 1862-5, superior numbers of infantry."

It has been proven that a frontal attack against an entrenched position is possible where the troops are not only brave but thoroughly trained. It was the system and training that gave the Japanese the victory over an enemy equally brave, commanded by an equally able general, and having better guns for their artillery, and better horses for their cavalry. The Japanese inequality in guns was more than counter-balanced by their superior knowledge of their weapon, their mobility, gunnery, and excess in number. The Japanese officer in each grade attended strictly to his own duties, leaving others to attend to theirs. It was business with them and not display; they were well educated to their profession, and took it very seriously, working hard to excel in it without regard to the question of advancement or reward. The Japanese system of censorship was of distinct advantage to them. They had the great advantage in transportation, and succeeded in "getting the mostest men there the fustest."—*U.S. Army and Navy Journal.*

Comparison of the Russian and Japanese Losses During the late War.—In the JOURNAL for January, 1906, p. 132, some details were published of the Russian losses during the late war. The present is a comparison made by the *Ruskii Invalid* between the Russian and Japanese losses, the

latter having been published in the *Semaine Médicale*, and which deal with the period between the 1st February, 1904, and the 1st November, 1905.

The following were attended in hospital:—Russian Army, 333,411, or 224·25 per 1,000; Japanese Army, 334,073, or 220·51 per 1,000. The slightly greater liability to disease of the Russian Army is easily accounted for by the fact that it operated in a climate with which it was unfamiliar, whilst the Japanese found themselves under much the same conditions as in their own country.

There died of disease:—Russian Army (in the hospitals) 6,947, (before entering hospital) 1,013, total, 7,960, or 2·38 per 1,000; Japanese Army, 21,802, or 6·52 per 1,000. The mortality from disease was, thus, in the Russian Army about a third that in the Japanese. If a comparison is made of the loss in killed and wounded in the Russian Army, the following results are obtained:—

Killed or died of wounds before entering hospital, 20,233, or 24·82 per 1,000; wounded cared for in hospital, 111,777. The proportion of killed to wounded is 1 to 5·52, or in other words, to every 100 men killed, 552 were wounded. If the Russians missing are included in the proportion of those killed and wounded, the following results will be obtained for the Russian and Japanese Armies:—

Russian Army.

Killed, 26,308, or 19·27 per 1,000 of the total effective; wounded, 145,317, or 106·48 per 1,000.

Comparison of killed to wounded was 1 to 5·92; number of wounded died in hospital, 3,402; percentage of mortality from wounds in hospital was 3·04.

Comparison of deaths from wounds to deaths from disease was to ·27, viz., to every 100 men killed or died of wounds, 27 died of disease; 20·03 per 1,000 wounded men were discharged as incapacitated from service. Comparison of death from wounds to that from disease was 100 to 73.

Japanese Army.

Killed, 47,387, or 31·27 per 1,000 of the total effective; wounded, 173,425, or 114·47 per 1,000.

Comparison of killed to wounded was 1 to 3·06; number of wounded died in hospital, 11,425; percentage of mortality from wounds in hospital, 6·53.

Comparison of deaths from wounds to deaths from disease was 1 to ·37, viz., to every 100 men killed or died of wounds, 37 died of disease; 21·53 per 1,000 wounded men were discharged as incapacitated from service. Comparison of death from wounds to that from disease was 100 to 99.

Epidemic diseases were more frequent in the Russian than in the Japanese Army:—

Russian Army, 34,205, or 25·05 per 1,000.
Japanese Army, 27,158, or 14·39 per 1,000.

It should be mentioned that in these last figures the number of Japanese who suffered from beri-beri is not included, and these, according to the *Semaine Médicale*, amounted to 59,055, or 38·98 per 1,000 of the total effective. In the figures quoted above, information relative to the garrison at Port Arthur is also not included.—*La France Militaire.*

NAVAL AND MILITARY CALENDAR.

JANUARY, 1907.

2nd (W.) The Amir of Afghanistan arrived in India on a visit.
5th (Sat.) Raisuli stronghold at Ziulat, Morocco, was destroyed by the Sultan's troops.
7th (M.) Official correspondence, relating to the Convention between Great Britain and France respecting the New Hebrides, was published.
8th (T.) Death of the Shah of Persia.
9th (W.) Mohamed Ali Mirza succeeded his father as Shah of Persia.
10th (Th.) H.M.S. "Fox" arrived at Portsmouth from East Indies.
12th (Sat.) The Amir of Afghanistan reviewed 30,000 British and Native troops at Agra.
14th (M.) 2nd Bn. Argyll and Sutherland Highlanders arrived in South Africa from India in the "Soudan."
18th (F.) The Amir of Afghanistan was appointed Knight Grand Cross of the Order of the Bath (Civil Division.)
19th (Sat.) 3rd Bn. Royal Warwick Regiment left Durban, South Africa, for England in the "Soudan," to be disbanded.
21st (M.) H.M.S. "Barham" paid off at Malta.
22nd (T.) H.M.S. "Barham" re-commissioned at Malta.
23rd (W.) H.M.S. "Fox" paid off at Portsmouth.
" " 1st Bn. Norfolk Regiment left Capetown, South Africa, for England in the "Soudan."
" " Sharp fighting took place in Liberia.
24th (Th.) Afridi tribesmen raided the Indian Frontier.
25th (F.) Announced that the Russian troops would evacuate Manchuria at once.
26th (Sat.) H.M.S. "Bulwark" arrived at Portsmouth from Mediterranean.

FOREIGN PERIODICALS.

NAVAL.

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Naval Budget for 1907." "Tactical Speed." "The "Kniaz Suvoroff" in the Battle of Tsushima." "The Cunard Fast Steamer "Mauretania."" "Cruise of the "Gjöa" in the American Arctic Archipelago."

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Machine Gun Company." "A System of Range Finding for Infantry." "A Garrison Town in Pennsylvania." "Types and Traditions of the Old Army." "Translations and Reprints." "Military Miscellany."

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Journal of the U.S. Cavalry Association. Fort Leavenworth, Kansas: January, 1907.—"Port Arthur." "Machine Guns in the Russian Army during the Campaign in Manchuria." "An Interesting Case to Horsemen" (*continued*). "The German Manœuvres." "Wanted—System." "The Fort Riley Camp of Instruction, 1906." "Finger Prints." "The Skilled Packer." "Problems." "Field Wireless Operations in Cuba." "Military Gun Sights." "Military Notes."

Journal of the United States Infantry Association. Washington: January, 1907.—"Machine Guns in the Russian Army." "The Decauville Horse Railroad with the Russian Army in Manchuria." "The Present Tendencies of German Tactics." "Address to the Student Officers of the Service Schools and Staff College." "The Infantry and Cavalry School." "Public Opinion and the American Army." "The Service of Security." "Custom of War in Like Cases." "Infantry Drill Regulation." "Some Experiences with the New Rifle and New Firing Regulations." "A Plea for Fair Play on the Target Range." "Translations."

NOTICES OF BOOKS.

History of the Lancashire Fusiliers. By Major B. Smyth, M.V.O. Dublin: The Sackville Press.

That within two years of the publication of the first edition of the history of the regiment, every copy should have been sold is very creditable to the *esprit de corps* of the old 20th, and to the readable manner in which its compilation was conducted. There are splendid materials for a stirring history in the records of the regiment, and they seem to have been made the most of in the two volumes just published. The regiment owes its origin to the Revolution of 1688, when Sir Roger Peyton, who came over to England with William of Orange, raised six Independent companies in Exeter and its vicinity. Some idea of the ubiquitous nature of the regiment's service since then may be gathered from a glance at the honours on its colours. There is a good deal to conjure up in the memories of Dettingen, Minden, Egmont-op-Zee, Egypt 1801, Maida, Vimiero, Corunna, Vittoria, Pyrenees, Orthes, Toulouse, Peninsula, Alma, Inkerman, Sebastopol, Lucknow, Khartoum, and South Africa, and much to recall in the splendid services of such officers as Wolfe, Lord Seaton, and Ross of Bladensburg. The earlier portion of the history is rather sketchy, but the compiler has done well in recording prominently the services of the 20th on other celebrated occasions, and in painting in vivid colours

incidents and personalities likely to rouse the enthusiasm and increase the already strong feeling of *esprit de corps* which prevails in the regiment. It is probably not generally known that it fell to the lot of 12 grenadiers of the 20th to bear the remains of the great Napoleon to his grave at St. Helena in 1821; a piece of the coffin is still to be seen in the mess of the first battalion. Major Smyth seems to have carefully ignored the fact that the regiment for nearly a hundred years was officially styled East Devonshire, a title which was conferred on the 31st August, 1782. He is again in error in stating that Light Infantry companies were for the first time formed in the British service in 1793; they were introduced at a much earlier period. These, however, are trivial matters which only serve to prove the accuracy of the book as a whole. It is hoped that it will find a ready sale in the county of Lancaster, for the regiment is very much territorial now, and is proud of its title of Lancashire Fusiliers.

The Officers' Vade Mecum. By Captain R. MARTIN, Royal Irish Regiment. London: Forster, Groom & Co. 1906.

This little book is something more than it claims to be; it is at once a very fairly complete compendium of military knowledge, and at the same time a field note-book. It is, however, none the less useful for being unusually comprehensive, although the hypercritical might possibly complain that an officer who is fit to be trusted with men's lives in the field or who is considered sufficiently advanced to be taken on regimental tours, should not require the constant companionship of quite so complete a guide, or, indeed, of anything more elaborate than a means of merely refreshing the memory. However that may be, there is no doubt that this little work contains a vast amount of reliable information—although perhaps Captain Martin's remarks on "the counter-attack" may require some modification if, as some claim, the days of counter-attack on the defended ground close to a position are, except in very favourable circumstances, over. The general arrangement of the work is admirable and ingenious, and the sketches and examples clear and convincing.

PRINCIPAL ADDITIONS TO LIBRARY, JANUARY, 1907.

Recollections of James Anthony Gardner, Commander R.N. (1775-1814). (Navy Records Society.) Edited by Sir R. VESEY HAMILTON, G.C.B., Admiral, and JOHN KNOX LAUGHTON, M.A. 8vo. London, 1906.

Licensing and Temperance in Sweden, Norway, and Denmark. By E. A. PRATT. Crown 8vo. 2s. 6d. (Presented.) (John Murray.) London, 1907.

From West to East. By Sir H. JERNINGHAM. 8vo. 15s. (John Murray.) London, 1907.

Commerce in War. By L. A. ATHERLEY-JONES and H. H. L BELLOT. 8vo. 21s. (Methuen & Co.) London, 1907.

Before Port Arthur in a Destroyer. The Personal Diary of a Japanese Naval Officer. Translated from the Spanish Edition by Captain R. GRANT, D.S.O. 8vo. 9s. (John Murray.) London, 1907.

Naval Policy. A Plea for the Study of War. By "BARFLEUR." 8vo. (William Blackwood & Sons.) London, 1907.

Projectile-Throwing Engines of the Ancients. By Sir R. PAYNE-GALLWEY. Royal 4to. 5s. (Presented.) (Longmans, Green & Co.) London, 1907.

Geography in Relation to War. By Colonel E. S. MAY. 8vo. 2s. (Presented.) (Hugh Rees, Ltd.) London, 1907.

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Military History for Examinations in 1907 and 1908. By Lieut.-Colonel H. M. E. BRUNKER. Crown 8vo. 1s. (Presented.) (Forster Groom & Co., Ltd.) London, 1907.

La Belgique et la Hollande devant le Pangermanisme. By Le Général LANGLOIS. Crown 8vo. 1s. 2d. (Berger-Levrault et Cie.) Paris, 1906.

Under the Absolute Amir. By F. A. MARTIN. 8vo. 10s. 6d. (Harper & Brothers.) London, 1907.

The Colonials in South Africa, 1899-1902. By Captain J. STIRLING. 8vo. 10s. (Presented.) (William Blackwood & Sons.) London, 1907.

Die Ausbildung der Infanterie für den Angriff. By Colonel G. FREIHERR VON DER GOLTZ. 8vo. (E. S. Mittler & Sohn.) Berlin, 1904.

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Vagledning für Besökande i Lifrustkammaren och därmed förenade Samlingar. By C. O. OSSBAHR. Crown 8vo. (Presented.) Stockholm, 1905.

Svenska Kungliga Hufvudbauer Samt Flättecken. 8vo. (Presented.) Stockholm, 1900.

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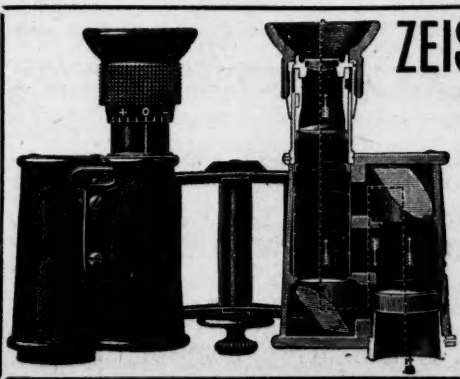

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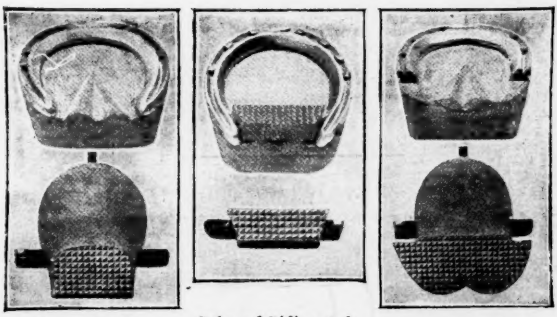

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